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Quality Assurance Report for Year 2017 Estuarine Water Quality Datasonde Monitoring

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Background:
This project is coordinated by the Piscataqua Region Estuaries Partnership (PREP), which is part of the U.S. Environmental Protection Agency's (EPA) National Estuary Program, a joint local/state/federal program established under the Clean Water Act with the goal of protecting and enhancing nationally significant estuarine resources. PREP receives its funding from the EPA and is administered by the University of New Hampshire (UNH).

Actual funding for this work comes from many sources, including: Great Bay National Estuarine Research Reserve (GBNERR), a partnership between NH Fish & Game and NOAA; EPA; NH Department of Environmental Services (NHDES); and municipalities in the Piscataqua Region Watershed.

Purpose:
To document the quality assurance checks and decisions regarding water quality measurements from datasondes deployed in the Great Bay Estuary and the Hampton-Seabrook Estuary in 2017. This document focuses on datasonde (automated sensors) measurements only. See related documents on "Grab Sample" measurements at: https://scholars.unh.edu/prep/. Datasonde parameters include: temperature, conductivity (salinity), dissolved oxygen, turbidity, depth, pH, total chlorophyll, and fluorescent dissolved organic matter (fDOM).

Methods:
The data were reviewed following the protocol developed by NHDES and the NERR system, following the System-Wide Monitoring Program (SWMP). For more details, see Attachment 1. In addition, more information on datasonde and non-datasonde (grab sample) water quality monitoring can be found by looking at recent Quality Assurance Project Plans (QAPPs), which can be found at: https://scholars.unh.edu/prep.

In 2017, the following stations had datasondes deployed: Little Bay (GRBLB), Great Bay (GRBGB), Great Bay West (GRBGBW), Squamscott River (GRBSQ), Lamprey River (GRBLR), Oyster River (GRBOR), Salmon Falls River (GRBSF), Upper Piscataqua River (GRBUPR), Lower Piscataqua River (GRBLPR), Coastal Marine Laboratory (GRBCML) and Hampton Harbor (HHHR). (See map, page 3.)

The QA system employed for the NERR program includes metadata and data processing via an automated QA Excel macro (see Attachment 2). All other sites were processed using the same macro which utilizes the "flag" codes described below in the "Data Management" section. The macro assigns a "comment" code to further explain each flag. All data is carefully reviewed (manually, as well as using the automated macro) and a determination made as to its validity. Additional flag and comment codes are assigned as needed. Calibration logs are provided as metadata for the non-SWMP stations. (See Attachment 3)

Data management:
All results for any parameter with a -2, -3, -4, or -5 flag were marked as invalid. All data flagged as suspect <1> were thoroughly assessed. Data determined to be anomalous were rejected in the macro or marked as invalid on the final spreadsheet, which will be uploaded into NHDES' Environmental Monitoring Database.

-5 Outside High Sensor Range
-4 Outside Low Sensor Range
-3 Data Rejected due to QAQC
-2 Missing Data
-1 Optional System-Wide Monitoring Program (SWMP) Supported Parameter

0 Data Passed Initial QAQC Checks
1 Suspect Data
2 *Open - reserved for later flag*
3 Calculated Data: Non-vented depth/level sensor correction for changes in barometric pressure
4 Historical Data: Pre-auto QAQC
5 Corrected Data

Great Bay Estuary & Hampton/Seabrook Estuary Sampling Stations

Chlorophyll and Fluorescent Dissolved Organic Matter (fDOM): YSI EXO2 datasondes were used at all sites, except for the Salmon Falls station. Starting in 2017, the EXO2 datasondes were outfitted with optical total algae probes (total chlorophyll and blue-green algae combined) and fDOM probes. The total algae sensors measure total chlorophyll (µg/L) and phycocyanin (µg/L) or phycoerythrin (µg/L). fDOM is measured in quinine sulfate units (1 QSU = 1 ppb quinine sulfate). A YSI 6600 datalogger was used at Salmon Falls that did not have the capacity for these additional optical probes.

Chlorophyll-a and fDOM validation samples were collected at a number of sites (GRBLPR, GRBUPR, GRBLB, GRBGBW, HHHR) to determine whether there is a correlation between sensor readings in the field and grab samples processed in the laboratory. Grab samples were taken with a Niskin water sampler at sonde depth, 0.5 meters off the bottom. Samples were collected during monthly datasonde swaps and mid-way through the deployment, approximately every two weeks.

A simple regression analysis was performed for each site. None of the sites showed a significant correlation between field sensor readings (total chlorophyll and fDOM) and samples analyzed in the laboratory (chlorophyll-a and fDOM). According to YSI, the sensor manufacturer, the sensors are designed to simply serve as a proxy for concentrations in the field and to complement traditional lab analysis methods; therefore, there are accuracy limitations associated with the data that are detailed in the YSI manual, including interference from other fluorescent species, differences in calibration methods, and the effects of cell structure, particle size, organism type, temperature, and light on sensor measurements. Therefore, all data from the total algae and fDOM probes are considered preliminary unless comparisons between the probe data and analytical data demonstrate a statistically significant trend and the data are corrected.

These preliminary data are included in the NHDES submission but have been flagged as invalid and should only be used to look at general trends and not specific concentrations. In the case of chlorophyll, data are considered an estimate as there is a poor correlation between probe readings and extracted chlorophyll-a grab sample data. Similarly, fDOM data are also considered an estimate as there is a poor correlation between probe readings and laboratory fluorometric grab sample analysis. Samples have not yet been collected to assess the accuracy of the blue-green algae sensors. Although these data are not valid for NHDES' assessment purposes, the data were reviewed, and anomalous points were rejected using the QA Excel macro. The data files retain these <-3> flags and associated comments to assist NHDES in their assessment process.

Results

The automated and manual review resulted in the rejection of some portion of the data collected at all sites. (For details, see next section.) This is normal given the extreme conditions and challenges seen in estuarine environments. The most common challenges were biofouling, battery failure, failure of particular sensors (e.g., pH or temperature), total datasonde failure, errors in the placement or anchoring of the datasonde, and errors in programming the sampling interval.

Nonetheless, the deployed datasondes collected substantial amounts of valid data, each collecting values for ~10 parameters every 15 minutes, between April and December. Detailed results of the automated and manual review of the data are described in the following sections, organized by station.

Anomalous Readings During Deployment

Coastal Marine Laboratory (Station GRBCML)

Deployment 2

Battery: Batteries failed 06/30/2017 15:00 EDT. No data were collected through the end of the deployment 07/06/2017 10:45 EDT. Overall, 1.3% of the deployment's data were not collected.

Deployment 3

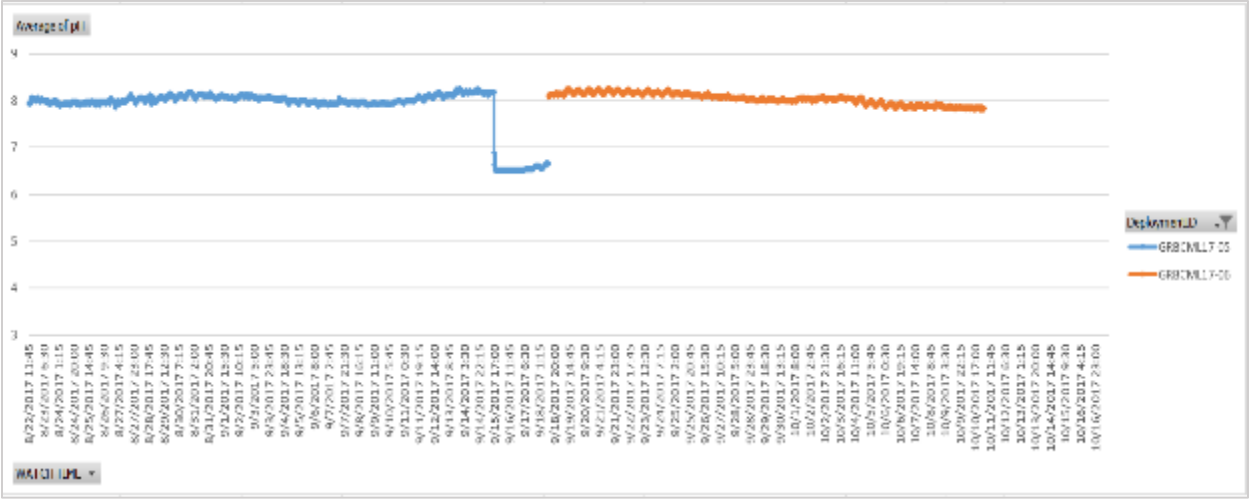
Instrument malfunction – all sensors: The datasonde failed 07/18/2017 20:30 EDT. There was no data collected through the end of deployment 07/24/2017 10:30 EDT. Overall, 19.5% of the deployment's data were not collected.

Dissolved Oxygen: The post-deployment QA test for dissolved oxygen was outside of the data quality objectives. In this instance, the check failed because the instrument malfunctioned; thus, there were no post-calibration data. The "DO Protocol" requires that the dissolved oxygen data be reviewed to look for anomalous readings, sensor drift, and changes in dissolved oxygen readings before and after sonde calibration or replacement. Review of the time series plot for this deployment does not indicate any unusual trends before the malfunction. Therefore, we consider all DO data from this deployment to be valid.

Deployment 5

pH: The pH sensor malfunctioned 09/15/2017 16:45 EDT. There were no data collected through the end of the deployment on 09/18/2017 12:30 EDT.

(Note drop in pH values [end of blue data series] and recovery [orange data series].)



Deployment 6

Battery: Batteries failed 10/11/2017 04:15 EDT. No data were collected through the end of the deployment 10/17/2017 15:15 EDT. Overall, 22.2% of the deployment's data were not collected.

Salmon Falls (Station GRBSF)

Deployment 1

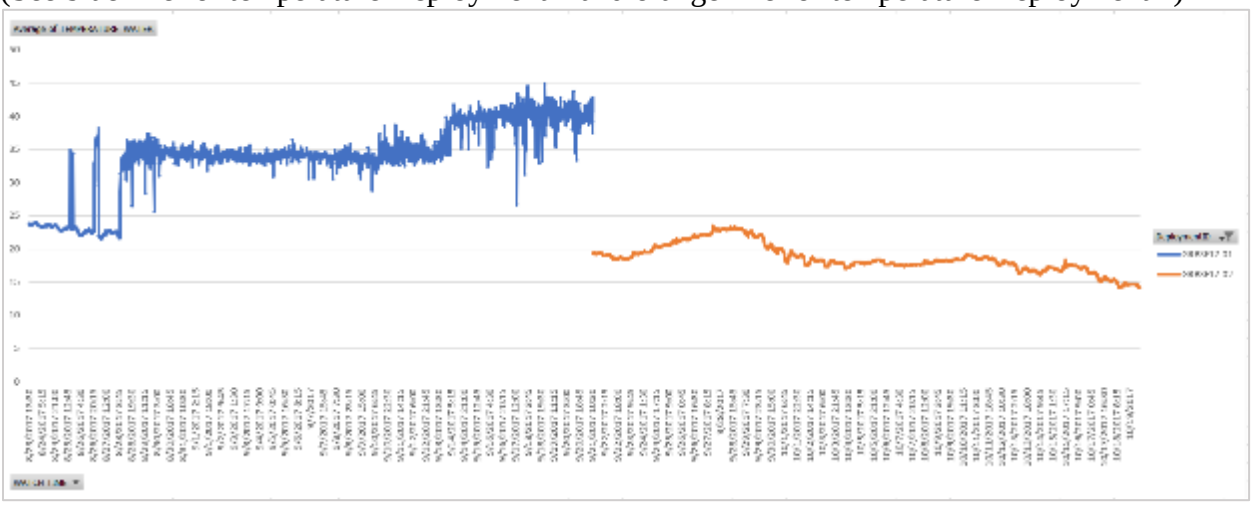
Temperature – all sensors: Catastrophic temperature sensor failures occurred during the following time periods. For YSI 6600 dataloggers, the protocol requires that all parameters be rejected during these events.

08/25/2017 16:00 EDT
08/25/2017 20:00 EDT
08/26/2017 21:45 EDT

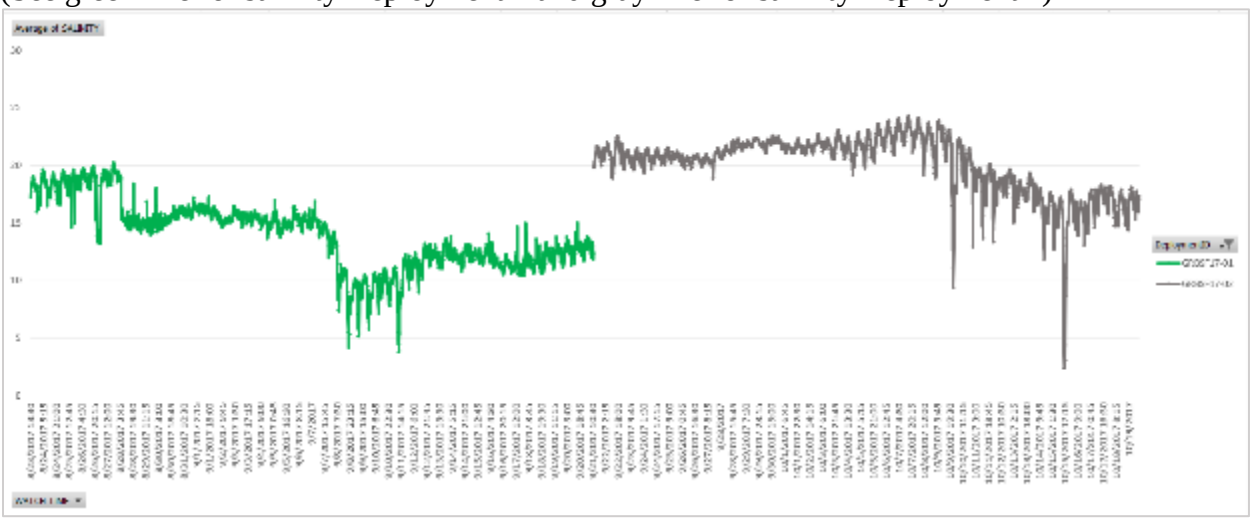
08/26/2017 22:30 – 08/27/2017 03:15 EDT
08/28/2017 05:45 EDT through the end of the deployment 09/21/2017 11:45 EDT

Overall, 84.6% of deployment's data were rejected.

(See blue line for temperature Deployment 1 and orange line for temperature Deployment 2)



(See green line for salinity Deployment 1 and gray line for salinity Deployment 2)



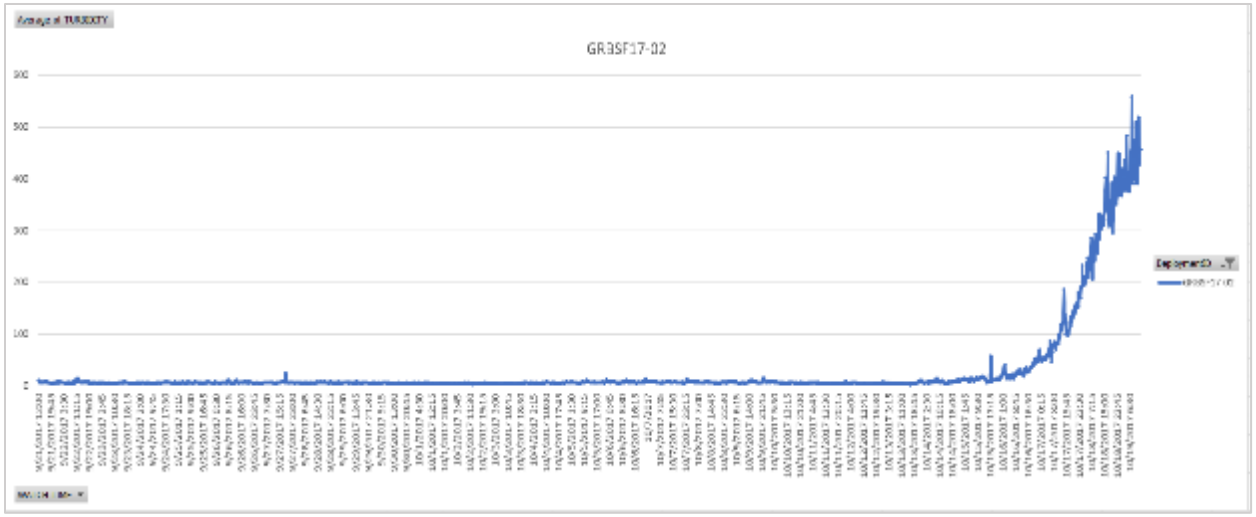
Dissolved Oxygen: The post-deployment QA test for dissolved oxygen was outside of the data quality objectives. In this instance, there were no post-calibration data collected as the temperature sensor had failed; thus, data for all parameters were rejected. Following the previously discussed "DO Protocol," review of the time series plot for this deployment does not indicate any unusual trends outside of the failures. Therefore, we consider all other DO data from this deployment to be valid.

Deployment 2

pH: Due to severe barnacle biofouling, pH data from 10/05/2017 02:30 EDT through end of deployment 10/19/2017 13:00 EDT were rejected.

Turbidity: Due to severe barnacle biofouling, turbidity data from 10/15/2017 17:30 EDT through end of deployment 10/19/2017 13:00 EDT were rejected.

(See end of blue line for evidence of severe biofouling.)



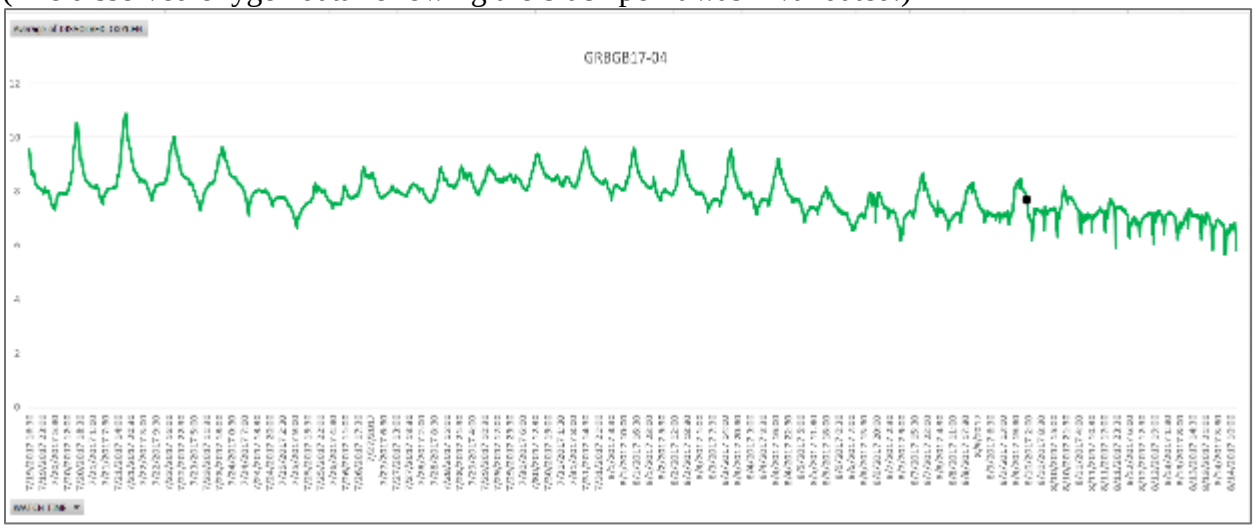
Overall, 8.1% of the deployment's data were rejected due to the pH and turbidity data rejections.

Great Bay (Station GRBGB)

Deployment 4

Dissolved oxygen: Dissolved oxygen (saturation % and concentration mg/L) beginning 08/11/2017 22:45 EDT and continuing through the end of the deployment 08/14/2017 13:00 EDT was initially rejected due to biofouling, which led to out-of-range post-calibration dissolved oxygen values. Upon closer review, we decided to also invalidate data from 08/10/2017 02:00 through 08/11/2017 22:30 EDT.

(The dissolved oxygen data following the black point was invalidated.)

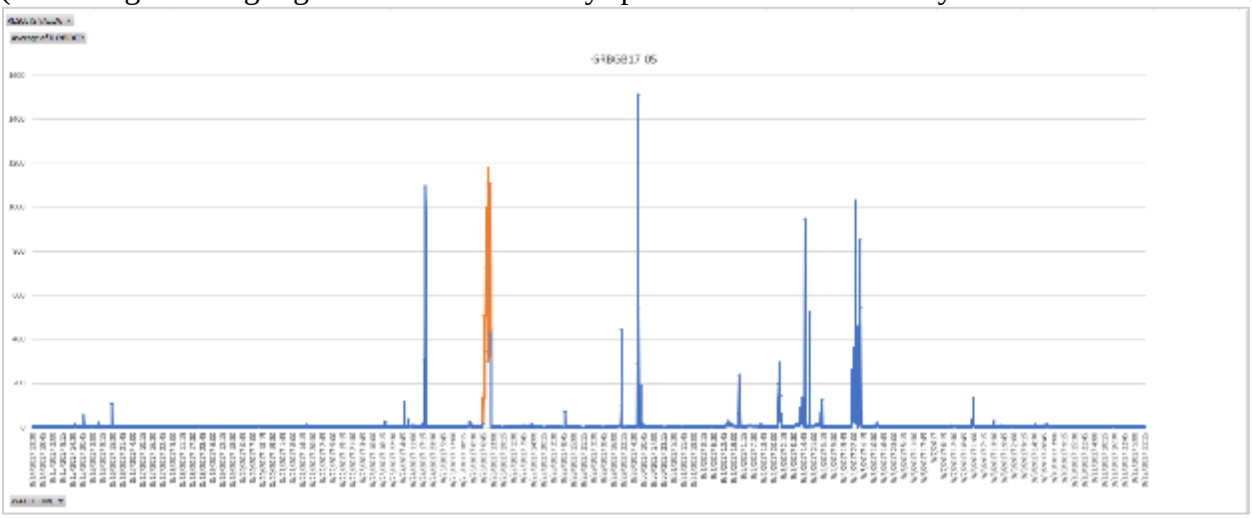


The post-deployment QA test for dissolved oxygen was outside of the data quality objectives. In this instance, the check failed because the datasonde was severely biofouled. The datalogger post-calibrated out-of-range (87.8% at 100.3% saturation). Following the previously discussed "DO Protocol," review of the dissolved oxygen saturation time series plot for this deployment shows that the data were valid up until 08/10/2017 02:00 EDT.

Deployment 5

Turbidity: The turbidity data from 08/26/2017 06:00 to 11:30 EDT were initially labelled as suspect. The field logs note that there were crabs and fish in the sonde guard when it was retrieved 09/12/2017 08:15 EDT. Accordingly, we believe that this significant turbidity spike and many others during this deployment were most likely caused by the movement of the animals. Therefore, these data were rejected.

(The orange line highlights one of the turbidity spikes that was most likely due to crabs and/or fish.)

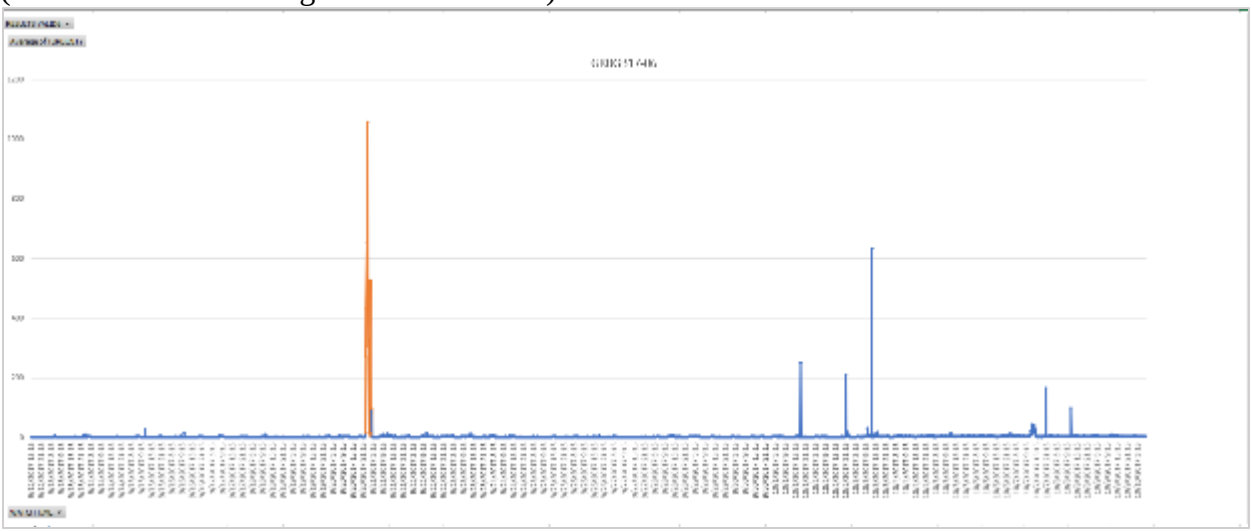


Specific conductance and salinity: Specific conductance and salinity from 09/04/2017 21:00 to 09/05/2017 01:00 EDT were initially labelled as suspect or rejected due to a wiper malfunction. Upon closer review, we decided to also invalidate 09/04/2017 20:15 to 20:45 EDT and 09/05/2017 01:15 to 02:15 EDT. As required by the protocol, dissolved oxygen mg/L and depth were also invalidated, as they are parameters calculated using specific conductance data.

Deployment 6

Turbidity: Turbidity data from 09/20/2017 22:45 to 09/21/2017 02:15 EDT were initially labelled as suspect. Upon closer review, we decided to invalidate this time series.

(The data series in orange was invalidated.)



Squamscott River (Station GRBSQ)

Deployment 7

Battery: Batteries failed 10/09/2017 00:45 EDT. No data were collected through the end of the deployment 10/23/2017 10:00 EDT. Overall, 51.2% of the deployment's data were not collected.

Dissolved Oxygen: The post-deployment QC test for dissolved oxygen was outside of the data quality objectives. In this instance, there were no post-calibration data collected as the instrument's batteries had died. Following the previously discussed "DO Protocol," review of the time series plot for this deployment does not indicate any unusual trends. Therefore, we consider all DO data from this deployment to be valid.

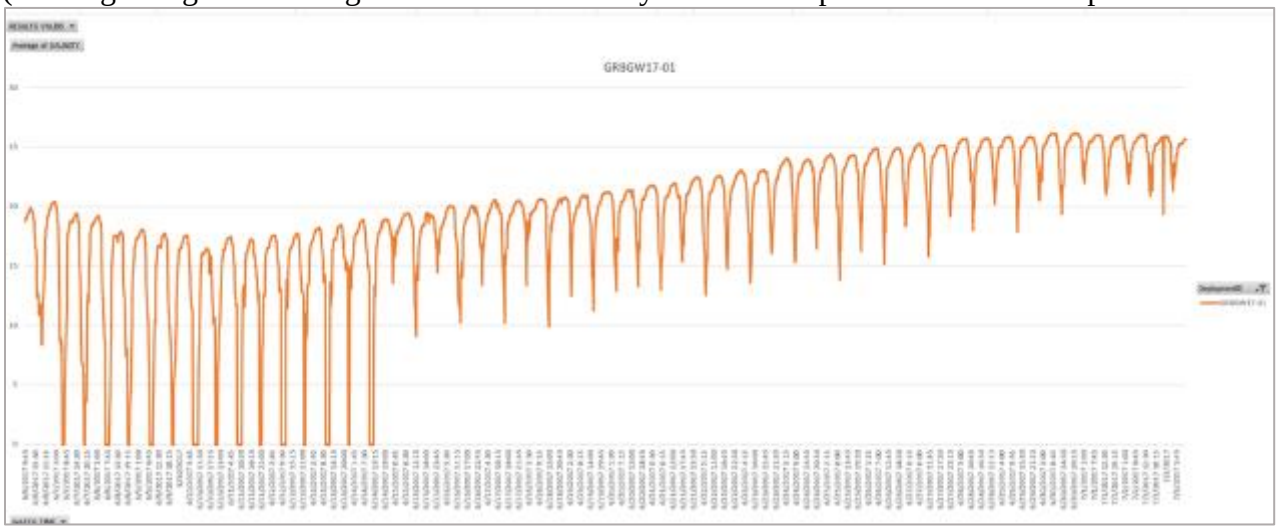
Great Bay West (Station GRBGW)

Deployment 1

pH: There were no pH data collected for the entire deployment beginning 06/06/2017 09:45 and continuing through 07/03/2017 11:00 EDT. This was due to a faulty sensor.

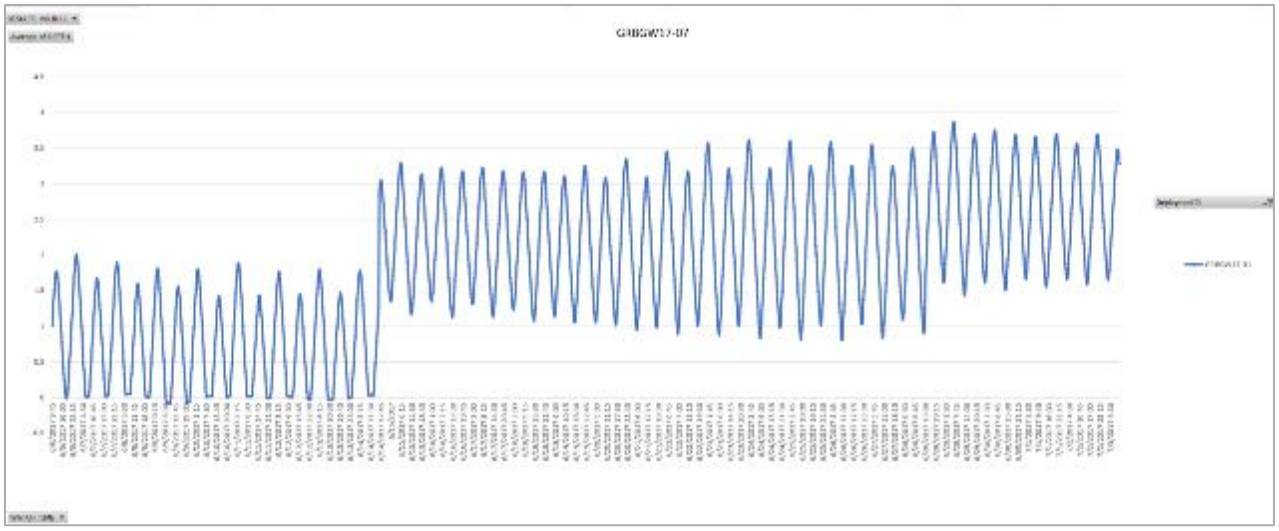
Depth: From the beginning of the deployment 06/06/2017 9:45 EDT and continuing through 06/14/2017 12:30 EDT, sensors were out of the water during low tide. As this was a new site, the initial placement of the datasonde was shallower than desired. There were 15 discrete out-of-water events. All data that corresponded with a ≤ 1 psu salinity reading were rejected. Additional data on each side of the events were also rejected if it appeared abnormal. Overall, including the missing pH mentioned above, 5.23% of the deployment's data were rejected.

(The beginning of the orange line indicates salinity and reflects problems with the depth of the datasonde.)

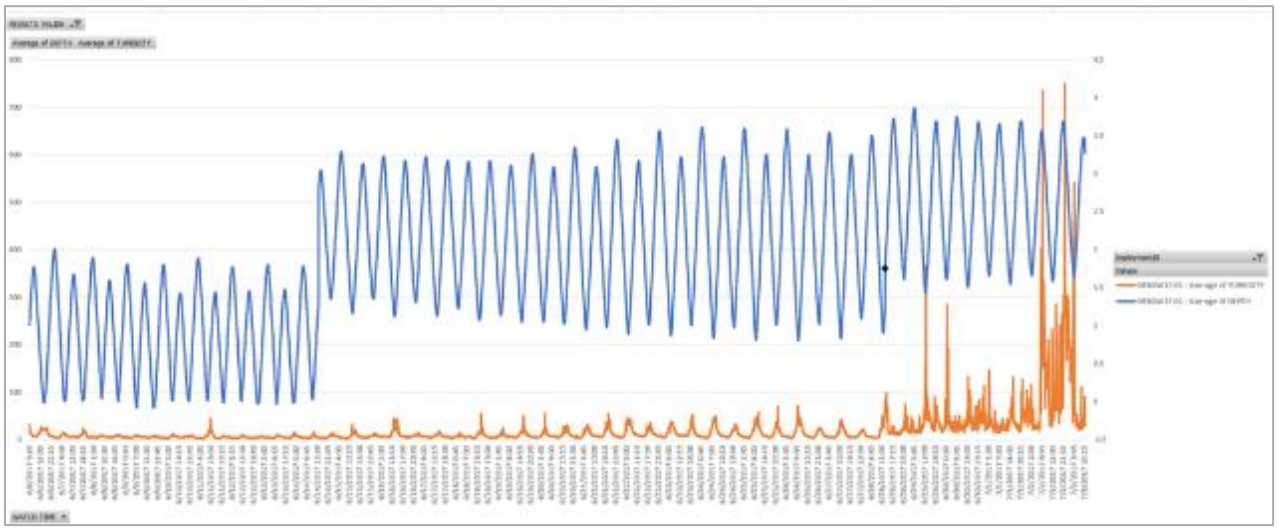


The datasonde was moved 30 meters towards the channel, into deeper water 06/14/2017 16:30 EDT. Depth change was approximately 1.5 meters. The out-of-water events stopped once the logger was moved to the new location.

(The first shift in the blue line indicates when the depth was corrected, and the data became valid.)



The datasonde was pulled up for inspection 06/28/2017 12:45 EDT. When redeployed 06/28/2017 13:00 EDT, the datasonde was 0.5 meters deeper. (See black point on blue line in figure below.) The slightly modified location and depth caused elevated and more variable turbidity readings through the end of the deployment 07/03/2017 11:00 EDT. (See orange line.) No data were rejected as the turbidity sensor post-calibrated well within range and there were no field notes indicating biofouling. In addition, turbidity values dropped at the end of the deployment. The instrument was returned to the proper location 07/03/2017 11:15 EDT at the beginning of the following deployment.



Deployment 2

Logging Interval: The datasonde was deployed with the wrong logging interval 07/03/2017 11:15 EDT through 07/05/2017 14:30 EDT. Data were collected every 15 hours, rather than every 15 minutes. During this two-day period, only 1.5% of the entire dataset was collected as a result.

Dissolved Oxygen: The post-deployment QC test for dissolved oxygen was outside of the data quality objectives. In this instance, the check failed because the datasonde was programmed with the wrong logging interval. A measurement was taken every fifteen hours, rather than every 15 minutes. Thus, there were no post-calibration data. Following the previously noted “DO Protocol,” review of the time series plot for this deployment does not indicate any unusual trends. Therefore, we consider all DO data from this deployment to be valid.

Deployment 6

Depth: The anomalous depth measurement on 09/25/2017 13:15 EDT, the first data point in the deployment, was not rejected as the corresponding measurements were retained.

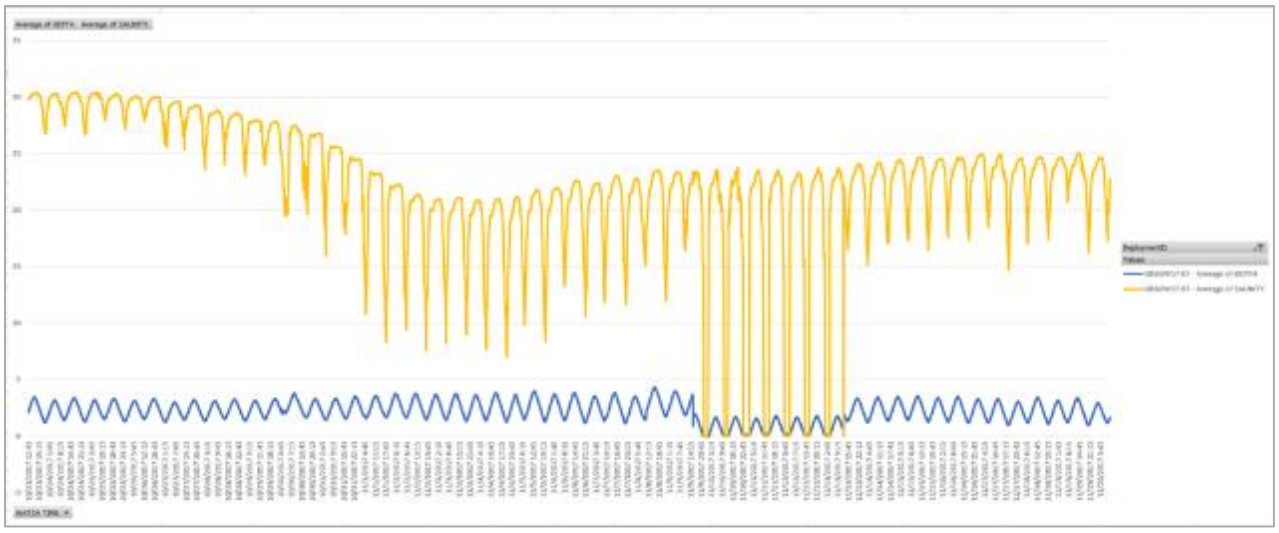
Battery: Batteries failed 10/07/2017 14:15 EDT. No data were collected through the end of the deployment 10/23/2017 12:30 EDT.

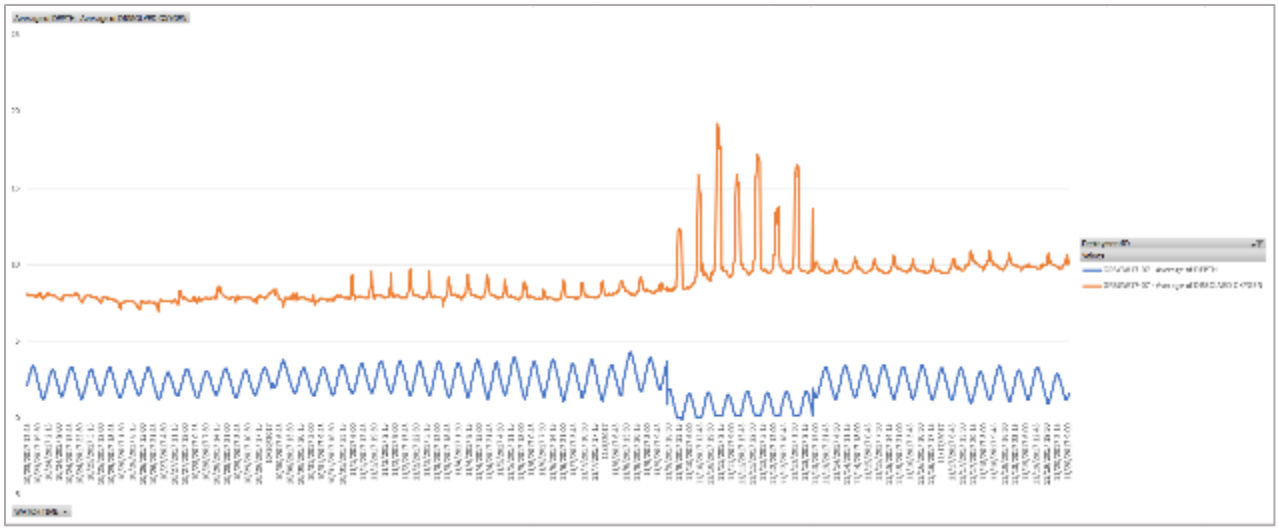
Dissolved Oxygen: The post-deployment QC test for dissolved oxygen was outside of the data quality objectives. In this instance, there were no post-calibration data collected as the instrument's batteries had died. Following the previously noted "DO Protocol," review of the time series plot for this deployment does not indicate any unusual trends. Therefore, we consider all DO data from this deployment to be valid.

Deployment 7

Depth: The datasonde was accidentally pulled up and then redeployed at the wrong location and depth 11/09/2017 16:00 EDT. It was returned to the correct location 11/13/2017 13:00 EDT. Data from all parameters that corresponded with a ≤ 1 psu salinity reading were rejected. Additional data on each side of the events were also rejected if they appeared abnormal. During the period from 11/09/2017 16:00 EDT through 11/03/2017 12:45 EDT, there were eight discrete out-of-water events – 3.2% of the data from the entire deployment were rejected. (See yellow line for salinity and orange line for dissolved oxygen.)

(The figures below reflect incorrect datasonde placement. Notice the impact on the yellow salinity data, as well as the orange dissolved oxygen data in the lower figure.)





Little Bay (Station GRBLB)

All deployments

Depth: The bathymetry of this new site posed challenges. It was hard to return the datasonde to the same depth each time as the water quickly dropped from 1-2 meters to 7-9 meters. Determining the location of the drop-off was often difficult. Even though the datasonde was at a different depth each deployment, other parameters were not significantly affected.

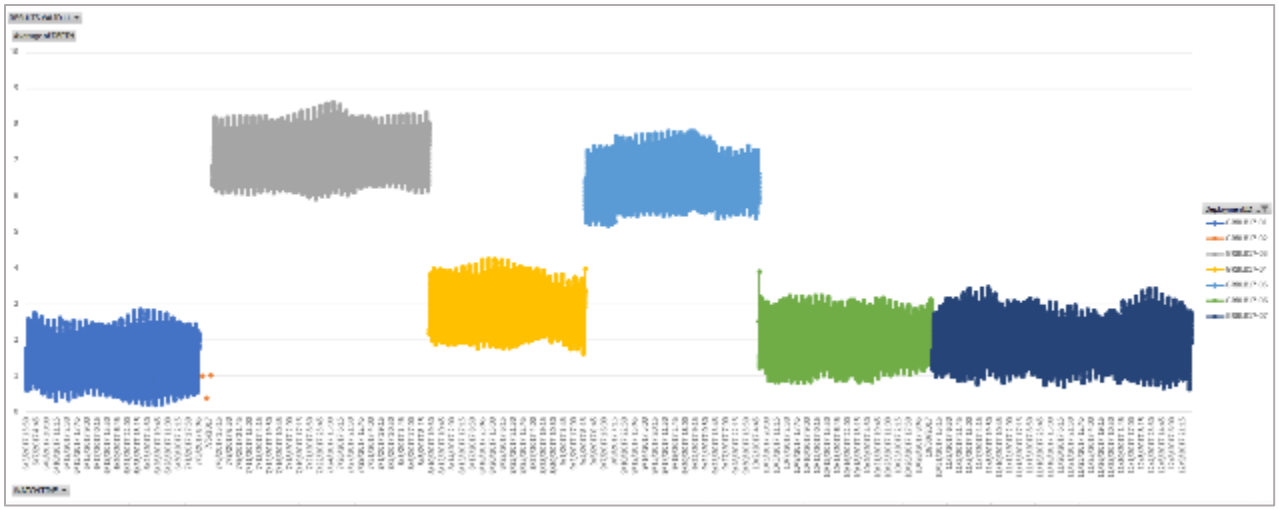
Following Deployments 1 and 2, 06/05/2017 13:30 EDT through 07/05/2017 15:00 EDT, the datasonde was moved to a new location after discussion with municipalities and NHDES. All parties agreed that the deeper water would be more representative of the site as a whole. The change did not significantly affect other parameters. (Deployments 1-2 shown in dark blue line and with orange points directly following the dark blue series.)

The datasonde anchor was then deployed on the edge of a deep channel 07/05/2017 15:15 EDT through 08/09/2017 14:45 EDT. Depth change was approximately 6 meters. However, this new placement caused the anchor to regularly fall over and made recovering the instrument difficult. (Deployment 3 is shown in gray.)

The datasonde was then deployed at a different location 20 meters closer to the shoreline 08/10/2017 11:00 EDT. It was placed on a shallower sloped bottom. Depth change was approximately 4 meters. (Deployment 4 shown in yellow.)

Sonde was inadvertently placed in deeper water 09/04/2017 15:00 EDT at the beginning of the deployment, which continued through 10/02/2017 16:00 EDT. (Deployment 5 shown in light blue.)

Sonde was returned to the correct location 10/02/2017 16:15 EDT. (Deployment 6 shown in green.)



Deployment 2

Logging Interval: The datasonde was deployed with the wrong logging interval 07/03/2017 12:00 EDT through 07/05/2017 15:00 EDT. Data were collected every 15 hours, rather than every 15 minutes. During this two-day deployment, only 1.5% of the entire dataset was collected as a result.

Dissolved Oxygen: The post-deployment QC test for dissolved oxygen was outside of the data quality objectives. In this instance, the check failed because the datasonde was programmed with the wrong logging interval. A measurement was taken every fifteen hours, rather than 15 minutes. Thus, there were no post-calibration data. Following the previously noted "DO Protocol," review of the time series plot for this deployment does not indicate any unusual trends. Therefore, we consider all DO data from this deployment to be valid.

Deployment 6

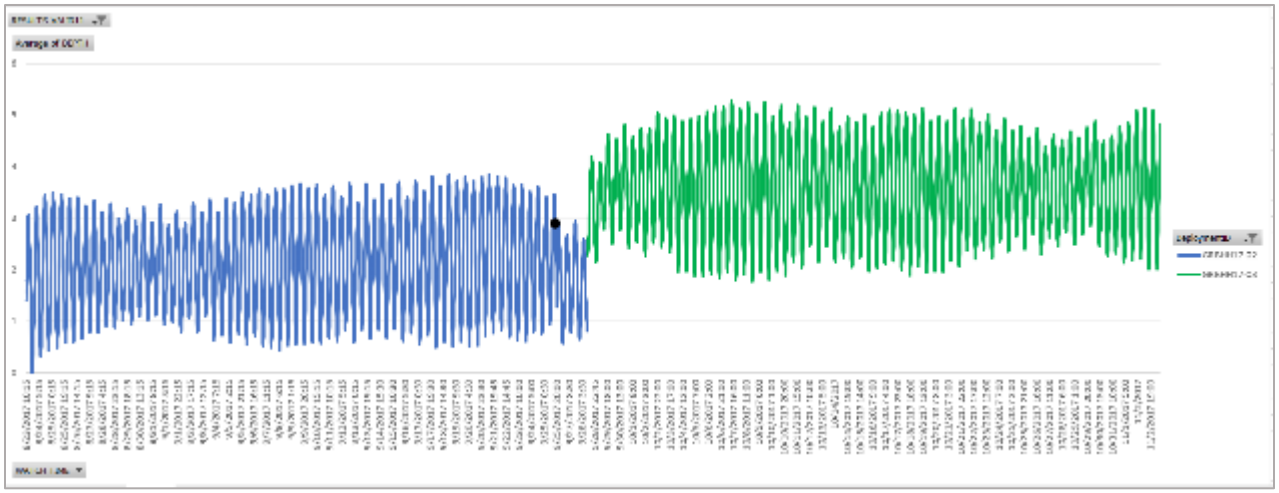
Depth: Anomalous depth measurements on 10/02/2017 16:15 to 16:30 EDT were not rejected as the corresponding measurements were retained.

Hampton Harbor (Station HHHR)

Deployment 3

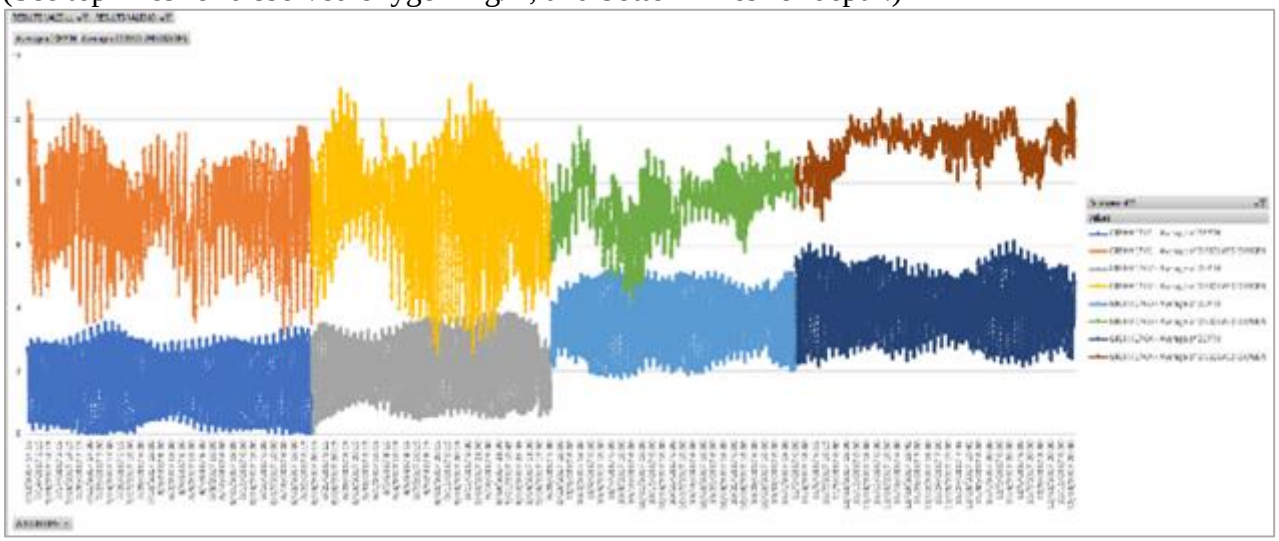
Depth: The datasonde was under the dock when retrieved 09/28/2017 12:00 EDT, most likely due to a capsized anchor. The datasonde was then moved 20 meters out, closer to the channel. Depth change was approximately 1.5-2 meters.

(The blue line following the black point shows the incorrect depth. The green line shows the depth once the datasonde was relocated for the second deployment.)



The relocation of the datasonde on 09/28/2017 12:15 EDT did not affect most parameters, although the variability in dissolved oxygen (% saturation and mg/L) did decrease after the instrument was moved into deeper water.

(See top lines for dissolved oxygen mg/L, and bottom lines for depth.)



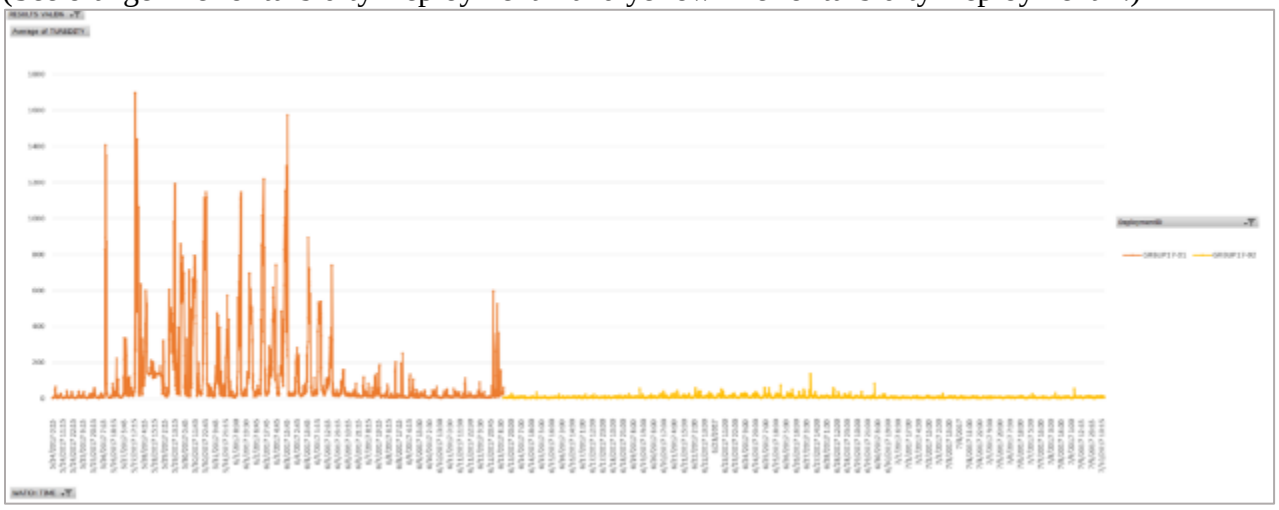
Upper Piscataqua River (Station GRBUPR)

Deployment 1

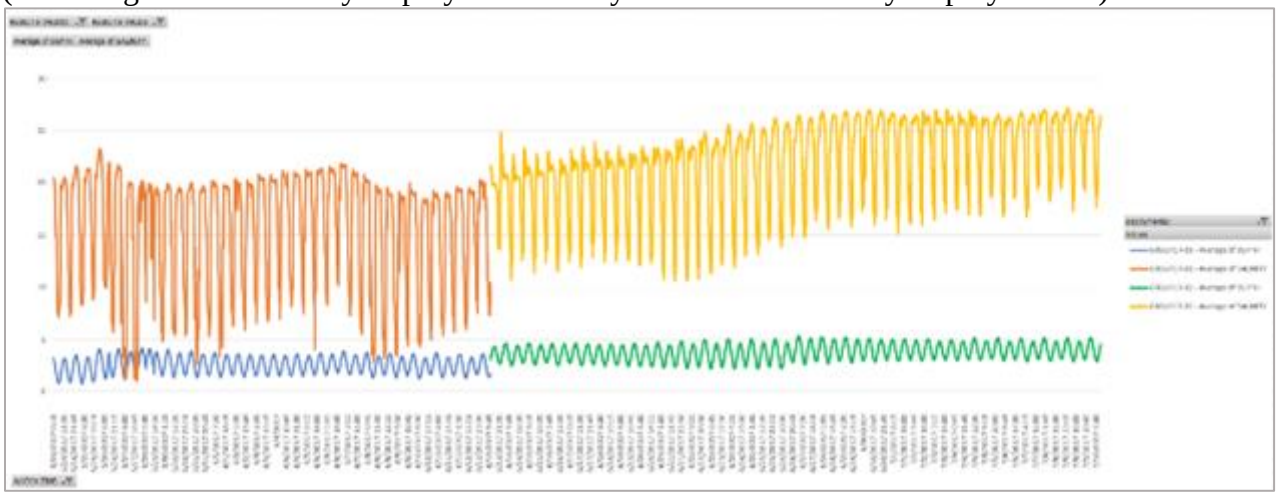
Depth: For the first deployment of the field season, the datasonde was placed at the coordinates of a pre-existing Environmental Monitoring Database site (NH57). It was at this location 05/18/2017 18:45 EDT through the end of the deployment 06/13/2017 11:30 EDT.

We believe the low dissolved oxygen (% saturation and mg/L) and elevated turbidity during this deployment is real, although a function of the shallow deployment of the datasonde. In addition, the datasonde's wiper brush malfunctioned regularly. This may have been caused by high levels of fouling matter in the shallow water, which the brush may have gotten stuck on. Another possibility is that the wiper may not have been properly calibrated. This issue contributed to the increased turbidity values and caused the abrupt drops in specific conductance and salinity. All the data associated with abnormal wiper readings were rejected.
The datasonde was moved to a deeper site 06/13/2017 19:00 EDT.

(See orange line for turbidity Deployment 1 and yellow line for turbidity Deployment 2.)



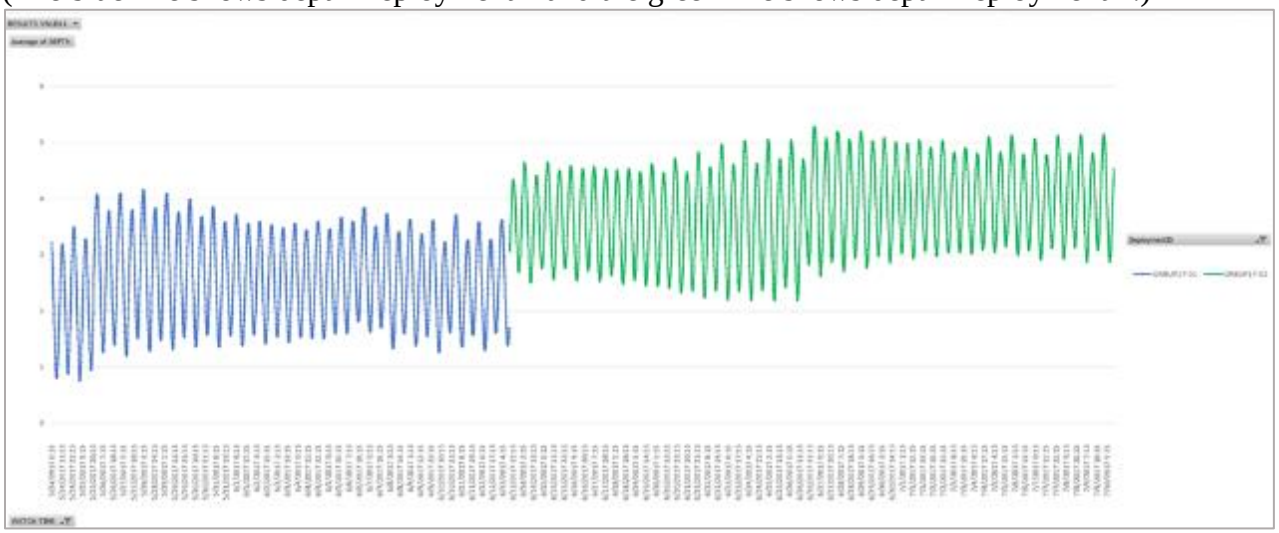
(See orange line for salinity Deployment 1 and yellow line for salinity Deployment 2.)



Deployment 2

Depth: The datasonde was deployed at a new site 06/13/2017 12:15 EDT. Instrument was moved approximately 20 meters closer to the channel and anchored on a level bottom rather than the sloped surface it had been on previously. The new site was 1-1.5 meters deeper. Other parameters were not significantly affected.

(The blue line shows depth Deployment 1 and the green line shows depth Deployment 2.)



Deployment 6

Battery: Batteries failed 10/30/2017 12:45 EDT. There were no data collected through the end of the deployment 11/07/2017 09:30 EDT.

Lower Piscataqua (Station GRBLPR)

Deployments 1, 2, and 5

pH: pH data from the entire deployment beginning on 07/11/2017 10:00 EDT and continuing through 08/11/2017 11:45 EDT were rejected due to a sensor malfunction.

pH data from 08/31/2017 21:15 EDT through 09/11/2017 13:15 EDT were rejected because the sensor failed.

There was no pH sensor on the datasonde for the entire deployment beginning 11/07/2017 09:15 EDT and continuing through 12/11/2017 11:15 EDT.

Deployment 4

Battery: Batteries failed 11/02/2017 13:45 EDT. No data were collected through the end of the deployment 11/07/2017 09:00 EDT.

Lamprey River (GRBLR) & Oyster River (GRBOR)

The GRBLR and GRBOR datasets were reviewed and no additional anomalous data were detected. Data from both of these sites were previously rejected using the QA Excel macro. These rejections were flagged and assigned comment codes which will be a part of the file uploaded to the EMD.

Daylight Saving Time Adjustment: All the data collected by the datasondes were recorded using Eastern Standard Time. To import the data to the NHDES' Environmental Monitoring Database, the times were converted to "watch time," (i.e., the time that you would see on a watch at that time, which includes adjustments for Daylight Savings Time). The specific methods for this time conversion are listed below.

On 11/05/2017 at 02:00:00 EDT, clocks changed to 01:00:00 EST. There were two sets of readings at 01:00:00, 01:15:00, 01:30:00 and 01:45:00 for EDT and EST. The first set of readings at 01:00:00, 01:15:00, 01:30:00 and 01:45:00 EDT were deleted and replaced with the readings at 01:00:00, 01:15:00, 01:30:00 and 01:45:00 EST.

Attachment 1

Criteria for Acceptance of GBNERR Dissolved Oxygen Datasonde Records for 305(b) Assessment Purposes

New Hampshire Department of Environmental Services
Water Division
Watershed Management Bureau

Prepared by
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New Hampshire Department of Environmental Services
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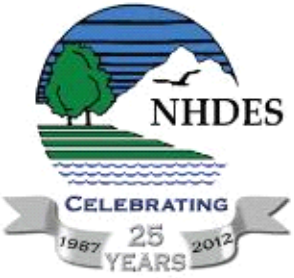
Thomas S. Burack, Commissioner
Harry T. Stewart, P.E., Water Division Director



March 2012

Version: 2 (03/28/2012)

Introduction

Great Bay National Estuarine Research Reserve (GBNERR) and the University of New Hampshire (UNH) deploy datasondes throughout the Great Bay Estuary to monitor water quality during the ice-free season. The New Hampshire Department of Environmental Services (DES) uses measurements from the datasondes to determine whether water quality standards are being met in Great Bay for the Section 305(b) Surface Water Quality Assessments. A violation of water quality standards has implications for point source discharges, municipalities, and other sources of pollutants to the water body. Therefore, the data used for 305(b) purposes must pass certain quality assurance protocols.

GBNERR and UNH review the original data files and remove questionable data. Data and metadata for most of the deployments are available at http://cdmo.baruch.sc.edu/. The quality assurance process described in this document is only relevant for 305(b) purposes. The limitations placed on the data by these criteria do not restrict the use of the data for other purposes.

Purpose

To document the quality assurance criteria that DES will use to determine whether data from the datasondes should be used for 305(b) purposes.

Assumptions

- The generic metadata for the dissolved oxygen probes on the GBNERR/UNH sondes states that, "*The reliability of the dissolved oxygen (DO) data after 96 hours post-deployment for non-EDS (Extended Deployment System) data sondes may be problematic due to fouling which forms on the DO probe membrane during some deployments*." UNH utilizes EDS sondes, which use ROX Optical DO sensors. Therefore, all DO measurements of the deployment will be presumed to be accurate unless proven otherwise by quality control (QC) measurements.
- Laboratory calibration checks of DO saturation in a 100% solution will be considered a QC measurement. QC measurements should be completed at the end of each deployment. QC measurements at the beginning of each deployment are not necessary as the instrument will be calibrated to 100% saturation prior to deployment.
- Post deployment QC measurements will be considered to "pass" if the value is within ± 0.5 mg/L of the saturation value, following the EPA Region 1 Laboratory QAPP (EPA, 2011) and the EPA National Coastal Condition Assessment QAPP (EPA, 2010). For the purposes of the calculation, it will be assumed that the QC test is done at standard temperature and pressure (760 mmHg, 25°C). The saturation concentration of dissolved oxygen at standard temperature and pressure is equal to 8.2 mg/L.
- Sonde deployments for which the post-deployment dissolved oxygen readings fail to "pass" the post-deployment QC measurements will be flagged for further review to determine whether the data can be used for 305(b) assessments. This review will look for anomalous readings, sensor drift, and changes in dissolved oxygen readings before and after sonde calibration or replacement. DES will provide a justification for validating some or all of the dissolved oxygen data from these deployments.
- Sonde deployments for which the post-deployment QC measurements were not conducted or are missing will be flagged for further review to determine whether the data can be used for 305(b) assessments. This review will look for anomalous readings, sensor drift, and changes in dissolved oxygen readings before and after sonde calibration or replacement. DES will provide a justification for validating some or all of the dissolved oxygen data from these deployments.
- For all other parameters besides dissolved oxygen, the results retained in the datafile by the GBNERR or UNH project managers will be accepted as valid for 305b purposes.

Quality Assurance Criteria and Process

Step 1: Based on the assumptions listed above, the DO data for each deployment will be evaluated using the QC measurements. The DO measurements in the deployment will determined to be acceptable for 305(b) purposes if the post-deployment QC measurement of dissolved oxygen value is within ± 0.5 mg/L of the saturation value (8.2 mg/L). If the post-deployment QC measurement is reported in units of percent saturation, the measurement will be converted to units of mg/L by multiplying the percent value by 8.2 mg/L. Each deployment will be assigned a category of either "pass" or "fail" relative to this post-deployment QC test.

Step 2: The time series of DO (as % sat) will be plotted for each deployment to verify that the classifications from Step 1 are justified. If DO data from a deployment passed QC tests in Step 1 but had obvious errors based on the plot, then DES may decide to reject the data from this deployment. Likewise, if there is a good explanation for why data from a deployment failed QC tests, then DES may decide to include the data from this deployment. Determinations of this sort will be documented in a memo.

Step 3: DO results that are determined to not be useful for 305(b) purposes will be marked with an "N" in the ResultsValid field for DO in the deployment datafile and then uploaded to the DES Environmental Measurement Database.

Step 4: A quality assurance memo will be prepared summarizing the determinations from this process.

References

EPA. 2010. National Coastal Condition Assessment. Quality Assurance Project Plan. 841-R-09-004. U.S. Environmental Protection Agency, Office of Water, Office of Environmental Information, Washington DC. July 2010. Published online: http://water.epa.gov/type/watersheds/monitoring/upload/ncca-qapp.pdf.

EPA. 2011. US EPA Region 1. YSI Model 6-Series SONDES and Data Logger Standard Operating Procedure (Including: Temperature, pH, Specific Conductance, Turbidity, Dissolved Oxygen, Chlorophyll, ORP, Optical DO and Barometric Pressure), Revision 11, October 20, 2011.

Attachment 2

Great Bay (GRB) NERR Water Quality Metadata
April – December 2017
Latest Update: November 12, 2018

I. Data Set and Research Descriptors

1) Principal investigator(s) and contact persons

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2) Entry verification –

Deployment data are downloaded from the YSI Exo2 data loggers to a Dell Latitude E5540 laptop (IBM compatible). Files are exported from the KOR Software in an Excel File (.XLS) and uploaded to the CDMO where they undergo automated primary QAQC, automated depth corrections for changes in barometric pressure (cDepth parameter), and then become part of the CDMO's online provisional database. All pre- and post-deployment data are removed from the file prior to upload. During primary QAQC, data are flagged if they are missing or out of sensor range. The edited file is then returned to the Reserve for secondary QAQC where it is opened in Microsoft Excel and processed using the CDMO's NERRQAQC Excel macro. The macro inserts station codes, creates metadata worksheets for flagged data and summary statistics, and graphs the data for review. It allows the user to apply QAQC flags and codes to the data, remove any overlapping deployment data, append files, and export the resulting data file for upload to the CDMO. Upload after secondary QAQC results in ingestion into the database as provisional plus data, recalculation of the cDepth parameter, and finally tertiary QAQC by the CDMO and assimilation into the CDMO's authoritative online database. Where deployment overlap occurs between files, the data produced by the newly calibrated sonde are generally accepted as being the most accurate. For more information on QAQC flags and codes, see Sections 11 and 12. Tom Gregory and Lara Martin are responsible for data management. GRB archives all raw and QAQC'd files in Dropbox, in addition to back-up hard drives.

3) Research objectives –

YSI EXO2 data loggers were deployed in Great Bay and in the Squamscott, Oyster and Lamprey Rivers as part of the National Estuarine Research Reserves' (NERRS) System-wide Monitoring Program (SWMP). The goal is to develop and maintain temporally intensive long-term datasets of physio-chemical parameters of water quality at locations that are representative of the Great Bay estuarine system. The Great Bay site is relatively unimpacted, while the three tidal river sites (Lamprey, Oyster and Squamscott) have large drainage basins and are impacted by both point (wastewater treatment plants) and nonpoint sources of pollution. In addition to establishing a baseline of water quality and increasing our understanding of the spatial and temporal variability of important indicators of estuarine water quality, the data is used by researchers in the analysis of physical and biological processes.

4) Research methods –

Datasondes are programmed to obtain measurements of specific conductivity, salinity, dissolved oxygen, percent saturation, pH, temperature, depth, and turbidity every 15 minutes (Eastern Standard Time). Only EXO2 sondes were used in 2017 although in previous years YSI model 6600 sondes were used. All are equipped with non-vented depth sensors. The instruments are deployed continuously during ice-free seasons, except for brief periods when they are removed for cleaning, maintenance and recalibration. Pre- and post-deployment calibrations are performed using the diagnostics menu of the YSI Kor software and QAQC procedures developed by NERR Research Coordinators and YSI engineers.

YSI conductivity standard (YSI 3169 – 50 mS/cm) and Fondriest Environmental pH 7 and 10 buffers (FNBU5007-G and FNBU5010-G) are used for calibration. YSI turbidity standard (YSI 6073G – 124 FNU) is used to calibrate turbidity probes. Air-saturated water is used to calibrate percent dissolved oxygen.

During each deployment, field measurements of temperature, salinity, specific conductivity, and dissolved and percent oxygen are recorded using a handheld YSI PRO 2030 field meter.

Total Algae sensors (chlorophyll-a, in addition to either blue-green algae/phycocyanin [BGA-PC] or blue-green algae/phycoerythrin [BGA-PE]) and fDOM sensors are now being deployed at Great Bay reserve sites. Only chlorophyll-a data is QAQC'd using the CDMO macro. Blue-green algae and fDOM data are included in the reported dataset but have not been officially QAQC'd. Please contact the reserve for this data and sensor calibration protocols.

Chlorophyll sensors are individually, or gang calibrated in µg/L units using a 2-point calibration method. Deionized water is used as a 0 standard and a Rhodamine WT dye as the second standard (0.625 mg/L Rhodamine WT dilution--200:1 dilution of the original liquid concentrate). The effect of temperature on the fluorescence of Rhodamine WT dye is accounted for when calibrating the EXO Total Algae sensor. The temperature correction coefficient of the Rhodamine WT standard solution is determined using a table provided by YSI. The true temperature of the standard is cross referenced to tables values to obtain the corrected µg/L chl-a value for Rhodamine WT. The corrected value is entered in the KOR software for calibration.
The post-calibration check is completed by running the sensor in deionized water to determine how far it has drifted from a 0 reading. We track carefully on calibrations to see how much drift there is between deployments.

In October 2017, grab samples were collected at sonde depth at the Great Bay, Lamprey River, and Squamscott River sites. Extracted chlorophyll values were in line with the sonde readings.

Site	Date/Time	Sonde Chl-a µg/L	Extracted Chl-a µg/L

GRBLR	07/19/2017 11:50	6.78	6.74
GRBGB	07/19/2017 15:13	6.65	8.32
GRBSQ	07/25/2017 9:06	21.13	31.7
GRBLR	08/1/2017 11:29	8.02	15.88
GRBGB	08/1/2017 12:17	5.29	6.26
GRBSQ	08/3/2017 16:00	14.68	16.34
GRBGB	08/14/2017 12:21	4.97	9.43
GRBSQ	08/15/2017 12:01	9.37	11.44
GRBSQ	08/28/2017 14:30	8.28	10.59
GRBLR	09/5/2017 13:16	4.41	4.95
GRBGB	09/5/2017 14:52	8.39	9.22
GRBLR	09/12/2017 9:55	2.81	4.11
GRBGB	09/12/2017 14:04	11.95	6.03
GRBLR	10/2/2017 8:57	3.46	11.10
GRBGB	10/3/2017 14:31	7.23	5.79
GRBLR	10/9/2017 12:30	3.39	4.65
GRBLR	10/17/2017 13:07	3.82	2.58
GRBSQ	10/23/2017 9:15	4.79	4.31
GRBSQ	10/31/2017 10:05	3.00	4.61
GRBLR	11/6/2017 11:50	5.14	1.64
GRBGB	11/6/2017 12:49	1.81	1.78
GRBSQ	11/20/2017 13:08	2.97	3.96
GRBGB	11/21/2017 11:30	2.18	1.33
GRBLR	11/21/2017 11:57	2.47	0.52
GRBSQ	12/4/2017 13:20	3.35	2.39

The Great Bay sonde is deployed 0.5 meters off the bottom in a PVC tube that is attached to the stem of a mushroom anchor.

The Lamprey and Squamscott River sondes are deployed inside piling mounted PVC tubes with the sensors 0.5 meters off the bottom.

Due to shallow depths and narrow channels, the Oyster River sonde must be deployed with the least amount of vertical expression above bottom. This was achieved by mounting the sonde inside a short PVC tube that was attached to the stem of a mushroom anchor. This allows for the sonde to be stationed in an upright position but also makes the anchor less susceptible to dragging than the previous deployment method. The sonde is deployed at 0.3 meters off the bottom.

Currently, none of the sites have telemetry.

5) Site location and character –

Site #1 Great Bay (GB)
Location: Central area of Great Bay proper.
Coordinates are 43º 04' 20" N latitude and 70º 52' 10" W longitude.
Salinity range: 5-32 ppt (seasonally); 0-5 ppt from high to low tide.
Temperature range: -1º C to 24º C (seasonally); 0-3 (from high to low tide)
Depth: 6.5 meters at MLW
Tidal height: 2.7 meters
Bottom type: Mud and rock channel bottom
Tidal velocity: maximum 50 cm/sec
Watersheds: Squamscott, Lamprey and Winnicut Rivers plus smaller streams.
High tide influence from Little Bay and associated rivers
Pollutant influence: clean reference site

Site #2 Squamscott River (SQ)
Location: Mid channel of the Squamscott River at the Boston and Maine Railroad Bridge, Stratham, NH.
Coordinates are 43º 02' 30" N latitude and 70º 55' 20" W longitude
Salinity range: 0-30 ppt (seasonally); 5-20 ppt from high to low tide.
Temperature range: -1º C to 27º C (seasonally); difference of 0-5º between high and low tide
Depth: 3.5 meters at MLW
Tidal height: 2.7 meters
Bottom type: Mud/oyster channel bottom
Tidal velocity: maximum 50 cm/sec
Watersheds: Exeter River, adjacent marshes
Pollutant influence: Urban stormwater, agriculture, two municipal wastewater treatment plants, residential septic systems

Site #3 Lamprey River (LR)
Location: West bank of the tidal portion of the Lamprey River, approximately 300 m downstream of the dam at Route 108 in Newmarket, NH.
Coordinates are 43º 04' 48" N latitude and 70º 56' 04" W longitude.
Salinity range: 0 - 27 ppt (seasonally); difference of up to 15 ppt between high and low tides.
Temperature range: -1º C to 27º C (seasonally); difference of up to 5º C between high and low tides.
Depth: 3.5 meters
Tidal height: 2.7 meters
Bottom type: Mud/rock
Tidal velocity: maximum 40 cm/sec
Watershed: Lamprey River
Pollutant influence: Urban stormwater, adjacent marina, upstream and downstream wastewater treatment plants, upstream agriculture

Site #4 Oyster River (OR)
Location: In the center channel of the tidal portion of the Oyster River, approximately 300 m downstream of the head of tide dam adjacent to Jackson's Landing in Durham, NH.
Coordinates are 43° 8' 2.40 N latitude 70° 54' 39.60 W longitude
Salinity range: 0 –32 ppt (seasonally); difference of up to 15 ppt between high and low tides
Temperature range: -1º C to 27º C (seasonally); difference of up to 5° C between high and low tides
Depth: 0.3 meters at MLW, 3 meters at highest high tides
Tidal height: 2.7 meters (maximum)

Bottom type: Mud
Tidal velocity: maximum 40 cm/sec
Watershed: Oyster River
Pollutant influence: Urban stormwater, mooring field and crew dock, downstream wastewater treatment plant, upstream agriculture, residential on-site sewage disposal.

Primary and Secondary SWMP Stations
Latitude and longitude for secondary SWMP sites are approximate. Sondes are deployed at these sites April/May through December.

Station Code	SWMP Status	Station Name	Location	Active Dates	Reason Decommissioned	Notes
GB	P	Great Bay	43º 04' 20" N, 70º 52' 10" W	Current	NA	NA
LR	P	Lamprey River	43º 04' 48" N, 70º 56' 04" W	Current	NA	NA
OR	P	Oyster River	43º 08' 02" N, 70º 54' 40" W	Current	NA	NA
SQ	P	Squamscott River	43º 02' 30" N, 70º 55' 20" W	Current	NA	NA

6) Data collection period –

Great Bay data collection began March 31, 2015 at 10:00.
Squamscott River data collection began March 31, 2015 at 10:15.
Lamprey River data collection began April 6, 2016 at 9:30.
Oyster River data collection began April 6, 2016 at 12:00.

The instruments are removed from the water during the winter months due to non-navigable conditions caused by ice and the removal of channel markers. Icing is particularly severe in the rivers and is harmful to instruments, boats, and telemetry equipment.

Great Bay Reserve Deployment Dates 2017

Great Bay

Deploy date and time	Retrieval date and time
04/24/2017 14:00	05/24/2017 11:30
05/24/2017 14:00	06/19/2017 15:15
06/19/2017 15:45	07/19/2017 09:15
07/19/2017 15:30	08/14/2017 12:00
08/14/2017 12:30	09/12/2017 10:30
09/12/2017 14:15	10/10/2017 07:30
10/10/2017 15:00	11/06/2017 12:45
11/06/2017 14:45	12/11/2017 13:45

Lamprey River

Deploy date and time	Retrieval date and time

04/27/2017 14:15	05/25/2017 10:30
05/25/2017 10:45	06/19/2017 10:15
06/19/2017 10:30	07/19/2017 11:45
07/19/2017 12:00	08/15/2017 10:45
08/15/2017 11:00	09/12/2017 09:45
09/12/2017 10:00	10/09/2017 12:15
10/09/2017 12:30	11/06/2017 11:45
11/06/2017 12:00	12/07/2017 14:45

Oyster River

Deploy date and time	Retrieval date and time
04/27/2017 13:15	05/25/2017 12:45
05/25/2017 13:15	06/19/2017 08:45
06/19/2017 09:15	07/12/2017 15:45
07/12/2017 16:00	08/07/2017 11:00
08/07/2017 13:30	09/04/2017 11:30
09/04/2017 12:00	10/02/2017 11:45
10/02/2017 12:00	10/30/2017 09:15
10/30/2017 09:45	11/21/2017 10:45
11/21/2017 11:00	12/11/2017 10:30

Squamscott River

Deploy date and time	Retrieval date and time
04/24/2017 13:45	05/16/2017 11:00
05/16/2017 13:00	06/13/2017 09:30
06/13/2017 10:00	07/10/2017 11:15
07/10/2017 11:30	08/03/2017 15:45
08/03/2017 16:15	08/28/2017 14:15
08/28/2017 14:30	09/25/2017 08:00
09/25/2017 08:30	10/08/2017 23:30
10/23/2017 09:15	11/20/2017 10:15
11/20/2017 13:15	12/07/2017 08:00

7) Distribution –

NOAA retains the right to analyze, synthesize and publish summaries of the NERRS System-wide Monitoring Program data. The NERRS retains the right to be fully credited for having collected and process the data. Following academic courtesy standards, the NERR site where the data were collected should be contacted and fully acknowledged in any subsequent publications in which any part of the data are used. The data set enclosed within this package/transmission is only as good as the quality assurance and quality control procedures outlined by the enclosed metadata reporting statement. The user bears all responsibility for its subsequent use/misuse in any further analyses or comparisons. The Federal government does not assume liability to the Recipient or third persons, nor will the Federal government reimburse or indemnify the Recipient for its liability due to any losses resulting in any way from the use of this data.

Requested citation format:

NOAA National Estuarine Research Reserve System (NERRS). System-wide Monitoring Program. Data accessed from the NOAA NERRS Centralized Data Management Office website: http://www.nerrsdata.org/; *accessed* 12 October 2012.

NERR water quality data and metadata can be obtained from the Research Coordinator at the individual NERR site (please see Principal Investigators and Contact Persons), from the Data Manager at the Centralized Data Management Office (please see personnel directory under the general information link on the CDMO home page) and online at the CDMO home page www.nerrsdata.org. Data are available in comma delimited format.

8) Associated researchers and projects (link to other products or programs) **–**

As part of the SWMP long-term monitoring program, GRB NERR also monitors 15-minute meteorological along with monthly grab samples and diel sampling for nutrient data which may be correlated with this water quality dataset. These data are available at www.nerrsdata.org.

Evaluation of remote data acquisition technologies and advanced water quality sensors. Dr. Richard Langan, CICEET director, and Jeremy LeClair, U.N.H. Funded by CICEET.

Advanced optical monitoring technologies. Ru Morrison. Funded by Center for Ocean Observing and Analysis, U.N.H.

Smelt spawning studies. Kathy Mills, NH Fish & Game, and David Berlinsky, U.N.H. Funded by NOAA Office of Protected Resources via a sub-contract from Maine Department of Marine Resources

Comprehensive water quality, organic nitrogen and photosynthetically active radiation (PAR) monitoring studies – Dr. Jonathan Pennock, Jackson Estuarine Laboratory. Supported by the New Hampshire Estuaries Project

Eelgrass modeling studies - Dr. Fred Short, Jackson Estuarine Laboratory. Supported by the New Hampshire Estuaries Project and the New Hampshire Port Authority.

Bathymetric modeling and tidal elevation studies conducted by the NOAA – Dr. Larry Mayer, UNH Center for Coastal Ocean Mapping. Supported by the UNH-NOAA Joint Hydrographic Center.

Oyster reef mapping and restoration – Dr. Ray Grizzle, Jackson Estuarine Laboratory. Supported by NH Fish and Game, the NOAA-UNH Joint Hydrographic Center and the Center for Coastal and Ocean Mapping.

Microbial source tracking studies using ribotyping - Dr. Stephen Jones, Jackson Estuarine Laboratory. Supported by NH DES, NHEP and CICEET

Lobster migration and behavior research - Dr. Winsor Watson and Dr. Hunting Howell, UNH Zoology Department. Ten years of studies supported by USDA and Sea Grant that track lobster abundance, movement and behavior in relation to physical and biological variables in the Great Bay Estuary.

EPA national Coastal Assessment Program - Dr. Stephen H. Jones, Jackson Estuarine Laboratory. Funded by the US-EPA.

Anadromous and juvenile fish population assessments – Cheri Patterson, NH Fish and Game Department and Great Bay NERRS. Supported by NH Fish and Game.

II. Physical Structure Descriptors

9) Sensor specifications –

Great Bay NERR deployed only EXO2 sondes this monitoring year. Most of the sondes and probes were manufactured in 2016 and 2017. The reserve is still using one EXO2 from 2013 and three from 2014 and several probes from similar time periods. Typically, the sondes are outfitted with the same set of sensors throughout the monitoring season. The reserve is now using chlorophyll and fDOM probes which are a part of the sensor configuration. The Oyster River sonde does not have chlorophyll or fDOM probes. Sondes are rotated between all the sites.

YSI EXO2 Sonde:

Parameter: Temperature
Units: Celsius (C)
Sensor Type: Wiped probe; Thermistor
Model#: 599827
Range: -5 to 50º C
Accuracy: ±0.2º C
Resolution: 0.001º C

Parameter: Conductivity
Units: milli-Siemens per cm (mS/cm)
Sensor Type: Wiped probe; 4-electrode cell with autoranging
Model#: 599827
Range: 0 to 100 mS/cm
Accuracy: ±1% of the reading or 0.002 mS/cm, whichever is greater
Resolution: 0.0001 to 0.01 mS/cm (range dependent)

Parameter: Salinity
Units: practical salinity units (psu)/parts per thousand (ppt). Values calculated using conductivity and temperature data
Model#: 599827
Sensor Type: Wiped probe
Range: 0 to 70 ppt
Accuracy: ±2% of the reading or 0.2 ppt, whichever is greater
Resolution: 0.01 psu

Parameter: Dissolved Oxygen % saturation
Units: percentage (%)
Sensor Type: Optical probe w/ mechanical cleaning
Model#: 599100-01
Range: 0 to 500% air saturation

Accuracy: 0-200% air saturation: +/- 1% of the reading or 1% air saturation, whichever is greater.
200-500% air saturation: +/- 5% or reading
Resolution: 0.1% air saturation

Parameter: Dissolved Oxygen mg/L (Calculated from % air saturation, temperature, and salinity)
Units: milligrams/Liter (mg/L)
Sensor Type: Optical probe w/ mechanical cleaning
Model#: 599100-01
Range: 0 to 50 mg/L
Accuracy: 0-20 mg/L: +/-0.1 mg/l or 1% of the reading, whichever is greater
20 to 50 mg/L: +/- 5% of the reading
Resolution: 0.01 mg/L

Parameter: Non-vented Level - Shallow (Depth)
Units: feet or meters (ft or m)
Sensor Type: Stainless steel strain gauge
Range: 0 to 33 ft (10 m)
Accuracy: +/- 0.013 ft (0.04 m)
Resolution: 0.001 ft (0.001 m)

Parameter: pH
Units: pH units
Sensor Type: Glass combination electrode
Model#: 599702 (wiped)
Range: 0 to 14 units
Accuracy: +/- 0.01 units within +/- 10° of calibration temperature, +/- 0.02 units for entire temperature range
Resolution: 0.01 units

Parameter: Turbidity
Units: formazin nephelometric units (FNU)
Sensor Type: Optical, 90º scatter
Model#: 599101-01
Range: 0 to 4000 FNU
Accuracy: 0 to 999 FNU: 0.3 FNU or +/-2% of reading (whichever is greater).
1000 to 4000 FNU +/-5% of reading
Resolution: 0 to 999 FNU: 0.01 FNU, 1000 to 4000 FNU: 0.1 FNU

Parameter: Chlorophyll/Total Algae (BGA-PC or PE)
Units: micrograms/Liter (µg/Liter)
Sensor Type: Optical probe with mechanical cleaning
Model#: 599102-01
Range: 0 to 400 µg/Liter
Accuracy: Dependent on methodology
Resolution: 0.1 µg/Liter chl-a, 0.1% FS

Parameter: fDOM (fluorescent dissolved organic matter)
Units: Quinine sulfate units (QSU)
Sensor Type: Optical probe with mechanical cleaning
Model#: 599104-01
Range: 0 to 300 parts per billion (ppb) Quinine Sulfate equivalent (QSE)
Accuracy: Dependent on methodology
Resolution: 0.01 ppb QSE
Detection Limit: 0.07 ppb QSE

Depth Qualifier:

The NERR System-Wide Monitoring Program utilizes YSI data sondes that can be equipped with either vented or non-vented depth/level sensors. Readings for both vented and non-vented sensors are automatically compensated for water density change due to variations in temperature and salinity; but for all non-vented depth measurements, changes in atmospheric pressure between calibrations appear as changes in water depth. The error is equal to approximately 1.02 cm for every 1 millibar change in atmospheric pressure and is eliminated for vented sensors because they are vented to the atmosphere throughout the deployment time interval.

Beginning in 2006, NERR SWMP standard calibration protocol calls for all non-vented depth sensors to read 0 meters at a (local) barometric pressure of 1013.25 mb (760 mm/Hg). To achieve this, each site calibrates their depth sensor with a depth offset number, which is calculated using the actual atmospheric pressure at the time of calibration and the equation provided in the SWMP calibration sheet or digital calibration log. This offset procedure standardizes each depth calibration for the entire NERR System. If accurate atmospheric pressure data are available, non-vented sensor depth measurements at any NERR can be corrected.

In 2010, the CDMO began automatically correcting depth/level data for changes in barometric pressure as measured by the Reserve's associated meteorological station during data ingestion. These corrected depth/level data are reported as cDepth and cLevel and are assigned QAQC flags and codes based on QAQC protocols. Please see sections 11 and 12 for QAQC flag and code definitions.

> **NOTE: Older depth data cannot be corrected without verifying that the depth offset was in place and whether a vented or non-vented depth sensor was in use. No SWMP data prior to 2006 can be corrected using this method.** The following equation is used for corrected depth/level data provided by the CDMO beginning in 2010:
>
> ((1013-BP)*0.0102)+Depth/Level = cDepth/cLevel.

Salinity Units Qualifier:

In 2013, EXO sondes were approved for SWMP use and began to be utilized by Reserves. While the 6600 series sondes report salinity in parts per thousand (ppt) units, the EXO sondes report practical salinity units (psu). These units are essentially the same and for SWMP purposes are understood to be equivalent, however psu is considered the more appropriate designation. Moving forward the NERR System will assign psu salinity units for all data regardless of sonde type.

Turbidity Qualifier:

In 2013, EXO sondes were approved for SWMP use and began to be utilized by Reserves. While the 6600 series sondes report turbidity in nephelometric turbidity units (NTU), the EXO sondes use formazin nephelometric units (FNU). These units are essentially the same but indicate a difference in sensor methodology, for SWMP purposes they will be considered equivalent. Moving forward, the NERR System will use FNU/NTU as the designated units for all turbidity data regardless of sonde type. If turbidity units and sensor methodology are of concern, please see the Sensor Specifications portion of the metadata.

Chlorophyll Fluorescence Disclaimer:

YSI chlorophyll sensors (6025 or 599102-01) are designed to serve as a proxy for chlorophyll concentrations in the field for monitoring applications and complement traditional lab extraction methods; therefore, there are accuracy limitations associated with the data that are detailed in the YSI manual including interference from other fluorescent species, differences in calibration method, and effects of cell structure, particle size, organism type, temperature, and light on sensor measurements.

10) Coded variable definitions –

Sampling station:	Sampling site code:	Station code:
Great Bay	GB	grbgbwq
Lamprey River	LR	grblrwq
Oyster River	OR	grborwq
Squamscott River	SQ	grbsqwq

11) QAQC flag definitions –

QAQC flags provide documentation of the data and are applied to individual data points by insertion into the parameter's associated flag column (header preceded by an F_). During primary automated QAQC (performed by the CDMO), -5, -4, and -2 flags are applied automatically to indicate data that is missing and above or below sensor range. All remaining data are then flagged 0, passing initial QAQC checks. During secondary and tertiary QAQC 1, -3, and 5 flags may be used to note data as suspect, rejected due to QAQC, or corrected.

-5 Outside High Sensor Range
-4 Outside Low Sensor Range
-3 Data Rejected due to QAQC
-2 Missing Data
-1 Optional SWMP Supported Parameter
0 Data Passed Initial QAQC Checks
1 Suspect Data
2 *Open - reserved for later flag*
3 Calculated data: non-vented depth/level sensor correction for changes in barometric pressure
4 Historical Data: Pre-Auto QAQC
5 Corrected Data

12) QAQC code definitions –

QAQC codes are used in conjunction with QAQC flags to provide further documentation of the data and are also applied by insertion into the associated flag column. There are three (3) different code categories, general, sensor, and comment. General errors document general problems with the deployment or YSI datasonde, sensor errors are sensor specific, and comment codes are used to further document conditions or a problem with the data. Only one general or sensor error and one comment code can be applied to a particular data point, but some comment codes (marked with an * below) can be applied to the entire record in the F_Record column.

General Errors

GIC	No instrument deployed due to ice
GIM	Instrument malfunction
GIT	Instrument recording error; recovered telemetry data

GMC No instrument deployed due to maintenance/calibration
GNF Deployment tube clogged / no flow
GOW Out of water event
GPF Power failure / low battery
GQR Data rejected due to QA/QC checks
GSM See metadata

Corrected Depth/Level Data Codes

GCC Calculated with data that were corrected during QA/QC
GCM Calculated value could not be determined due to missing data
GCR Calculated value could not be determined due to rejected data
GCS Calculated value suspect due to questionable data
GCU Calculated value could not be determined due to unavailable data

Sensor Errors

SBO Blocked optic
SCF Conductivity sensor failure
SCS Chlorophyll spike
SDF Depth port frozen
SDG Suspect due to sensor diagnostics
SDO DO suspect
SDP DO membrane puncture
SIC Incorrect calibration / contaminated standard
SNV Negative value
SOW Sensor out of water
SPC Post calibration out of range
SQR Data rejected due to QAQC checks

SSD Sensor drift
SSM Sensor malfunction
SSR Sensor removed / not deployed
STF Catastrophic temperature sensor failure
STS Turbidity spike
SWM Wiper malfunction / loss

Comments

CAB* Algal bloom
CAF Acceptable calibration/accuracy error of sensor
CAP Depth sensor in water, affected by atmospheric pressure

CBF Biofouling
CCU Cause unknown
CDA* DO hypoxia (<3 mg/L)
CDB* Disturbed bottom
CDF Data appear to fit conditions
CFK* Fish kill
CIP *Surface ice present at sample station
CLT* Low tide
CMC* In field maintenance/cleaning
CMD* Mud in probe guard
CND New deployment begins
CRE* Significant rain event
CSM* See metadata
CTS Turbidity spike

CVT* Possible vandalism/tampering
CWD* Data collected at wrong depth
CWE* Significant weather event

13) Post deployment information

Great Bay

Deployment date	SpCond	pH 7	pH 10	DO%	Turb 0	Turb 124
04/24/2017	49.67	7.11	10.08	101.2	1.23	127.6
05/24/2017	50.32	6.66	9.59	100.1	-0.24	124
06/19/2017	50.05	7.01	10.07	101.9	-0.01	125.24
07/19/2017	49.52	7.07	10.04	87.8	0.02	124.03
08/14/2017	49.72	7.05	10.04	100.8	0.30	Not collected
09/12/2017	50.13	7.05	9.97	99.7	0.22	125.12
10/10/2017	49.23	7.06	10.06	99.8	0.4	117.4
11/06/2017	49.91	7.08	10.08	100.2	0.33	124.63

Lamprey River

Deployment date	SpCond	pH 7	pH 10	DO%	Turb 0	Turb 124
04/27/2017	50.6	7.05	10.10	100.7	-0.08	126.1
05/25/2017	50.6	7.13	10.07	100.6	0.03	123.8
06/19/2017	49.81	7.11	10.16	99.5	-0.20	119.0
07/19/2017	50.01	6.97	9.97	98.8	0.14	124.6
08/15/2017	49.75	7.12	10.08	100.0	0.55	Not collected
09/12/2017	50.15	7.09	10.02	99.7	0.08	123.8
10/09/2017	49.35	7.03	9.97	100.2	0.04	122.9
11/06/2017	50.09	7.02	10.08	100.8	0.40	125.98

Oyster River

Deployment date	SpCond	pH 7	pH 10	DO%	Turb 0	Turb 124
04/27/2017	50.7	7.08	10.15	100.7	-0.71	132.4
05/25/2017	49.82	7.27	10.08	103.0	0.49	124.1
06/19/2017	50.72	7.15	10.18	101.6	0.06	124.46
07/12/2017	49.82	7.03	10.05	98.9	0.28	124.0
08/07/2017	50.1	7.05	10.01	101.4	0.20	125.8
09/04/2017	49.76	6.98	9.98	101.0	0.11	124.9
10/02/2017	49.95	7.08	9.97	97.5	0.10	123.1
10/30/2017	50.34	7.08	10.10	100.6	0.02	126.83
11/21/2017	49.92	7.11	10.07	100.4	0.01	123.15

Squamscott River

Deployment date	SpCond	pH 7	pH 10	DO%	Turb 0	Turb 124
04/24/2017	49.89	7.09	10.11	101.5	-0.31	123.0
05/16/2017	49.9	7.19	10.09	100.1	-0.09	123.9
06/13/2017	49.95	7.16	10.10	101.5	-0.11	117.83
07/10/2017	49.94	7.08	10.11	99.9	0.01	128.76
08/03/2017	49.97	7.02	10.08	101.9	0.13	124.18
08/28/2017	49.87	7.10	10.04	100.8	0.35	125.04
09/25/2017	49.97	7.05	9.99	100.7	0.89	122.5
10/23/2017	49.82	7.03	10.04	101.0	0.70	125.3
11/20/2017	49.99	7.11	10.10	100.6	0.5	124.70

14) Other remarks/notes –

Turbidity anomalies – Biological
This type of anomaly includes turbidity readings that are outside of the normal range or greatly elevated above background baseline and unrelated to increased sediment suspension or decreased water column clarity. We believe this data is real and not a sensor malfunction, although not reflective of actual water column turbidity. These extreme values are likely due to biological factors (e.g., fish, crabs, other marine organisms). Our general guideline for flagging single-point spikes which are ≥200 FNU and more than 10 times greater than the surrounding values is to flag the point suspect <1> or to reject <-3> and label it with a turbidity spike [STS] code.

Turbidity anomalies - Suspension
This type of anomaly includes turbidity readings that are either outside the normal range or greatly elevated above background baseline and related to flow or weather-induced suspension. We believe this data is real and not a sensor malfunction, although not reflective of actual water column turbidity. These values are likely due to floating organic matter (e.g., eelgrass, leaves, detritus) suspended in the water column. Our general guideline for flagging this data is to closely analyze readings that are over 200 FNU and more than 5 times the magnitude of the surrounding values and linked to wind or high/changing water currents. These readings may be declared suspect <1> or rejected <-3> and labeled with a turbidity spike [STS] code.

Chlorophyll fluorescence anomalies
Biofouling, floating detritus, and/or a disturbed bottom can cause chlorophyll fluorescence optical sensors to record values which are outside the normal environmental range. A negative chlorophyll data point is flagged <-3> [SNV] according to CDMO flagging rules. Data points over five times the magnitude of surrounding values may be flagged as suspect <1> and labeled with a chlorophyll spike [SCS] code. Additionally, sustained values over 100 µg/L are considered suspect or rejected unless unusual conditions at the site can be verified. Spikes that exceed 400 µg/L are rejected <-3> and labeled with the [SCS] code.

All sites

Significant periods of rain between April 25 and June 6 created noticeable patterns at many of the sites. Rainfall exceeding 1-2 inches over a couple days typically causes the specific conductivity/salinity in the riverine sites to drop to zero.
May 14 – June 6 - Approximately 4-5 inches of rain fell. This was most visible in Great Bay (DO% and mg/L) and Lamprey River (pH, SpCond, salinity, turbidity, DO% and mg/L), Oyster River (SpCond, salinity)

Most stations, in particular Lamprey River, show unusual patterns in many parameters (pH, SpCond, salinity, DO % saturation and mg/L) October 25 through November 5. Three to four inches of rain fell during this period. In addition, there were 35 mph winds, with gusts up to 56 mph.

Great Bay

08/10/2017 11:30 – 08/14/2017 12:00 (end of deployment)
Wiper fell off and sonde was heavily fouled with algae and bryozoans when retrieved. Turbidity, chlorophyll, DO% saturation and mg/L data were labeled suspect or rejected. DO% post calibrated out of range (87.8% post/100.4% true).

08/26/2017 05:00 – 08/26/2017 10:30 (Turbidity <1> STS, CSM)
Our field logs note that there were crabs and fish in the sonde guard when it was retrieved 09/12/2017. We think that this significant turbidity spike may have been caused by the movement of the animals.

09/04/2017 19:15 – 09/05/2017 01:45
(Specific conductivity/Salinity <1> SWM, CSM, Turbidity <-3> SWM, CSM)

Our field logs note that there were crabs and fish in the sonde guard when it was retrieved 09/12/2017. We think that these significant turbidity spikes and perhaps even the malfunctioning wiper may have been caused by the animals. The incorrectly parked wiper led to unusual variability in the specific conductance and salinity readings.

09/03/2017 07:45 – 09/04/2017 01:00 [SCS]
Chlorophyll readings elevated. Data rejected. Rainfall during this period 0.9 inches, 20 – 30 mph winds. Sediment and organic matter from the bottom of the bay were likely suspended in the water column.

Throughout the dataset there are individual and time series data of high chlorophyll readings (~15-30 μg/L) that we believe are not representative of true water column chlorophyll biomass but rather of suspended organic matter or sediment from the bay bottom. There is often a corresponding rise in turbidity which reinforces our hypothesis. There are no signs of sensor malfunctions, so it was decided not to flag this data as suspect or rejected. This is the first year we have collected chlorophyll data on a large-scale and anticipate that we will have a better understanding of trends and variability after another collection season.

Squamscott

04/24/2017 13:45 – 05/16/2017 11:00 (GSM, CWD)
During a sonde swap on 05/16/2017 11:15, we discovered the pipe had slid down to the bottom of the piling. The logger was hanging above the bolt in the bottom of the tube. The pipe was reattached 5/16/2017 13:00 at the correct depth. This leads us to believe that for the first deployment 04/24/2017 13:45 through 05/16/2017 11:00, the sonde pipe may have been attached to the piling at a lower point than normal which caused the increased depth readings.

05/28/2017 14:45 – 06/09/2017 10:30 (GSM, CWD, CVT)
On 05/28/2017 14:45 the depth of the logger increased 0.5 meters. We think the sonde was pulled up by a non-staff member and when returned to the water was not put in the pipe. It hung outside the pipe collecting data until 06/09/2017 10:30 when it was pulled up for maintenance. When returned to the sonde tube and its correct depth 06/09/2017 10:45, it was higher in the water column, thus the decreased depth measurements. For this period, the data was not collected per SWMP standard operating procedures.

Most of the data collected when the logger was at the wrong depth, 04/24/2017 13:45 - 05/16/2017 11:00 and 05/28/2017 14:45 - 06/9/2017 10:30 doesn't seem that unusual. There was less variability in dissolved oxygen (% and mg/L) and temperature because the sonde was closer to the bottom thus less subject to tidal fluctuations. It also appears that the deeper location may have contributed to slightly depressed temperatures.

Sonde batteries ran out of voltage at the Squamscott River station 10/08/2017. There was no data collected from 10/08/2017 24:00 through 10/23/2017 09:00.

Deployment period: 11/20/2017 through 12/07/2017 – This deployment has many turbidity and chlorophyll spikes. There was only occasional rain and moderate winds throughout these weeks. Sonde when retrieved was clean although logs indicate a lot of loose algae and eelgrass present in and around the sonde. In addition, many of the spikes and elevated readings occurred when the tide was approaching low or starting to flood. The change in water direction may have temporarily stirred up algae and eelgrass from the bottom causing increased turbidity and chlorophyll. This site is surrounded by a very shallow area and as the tide starts to ebb, organic matter coming off the mudflat passes by the sonde. Much of this data was labeled suspect or rejected.

Oyster River

08/25/2017 05:30 – 08/31/2017 00:00 (CSM)
There are six instances in this period where on an ebbing tide, dissolved oxygen measured <4 mg/L. This pattern shows a rapid decrease in dissolved oxygen and then a dramatic 15-minute point rebound, often a 20-40% jump. This is a shallow site and we believe that as the warmer, super-saturated water slowly recedes from the mudflats, it

may temporarily stagnate around the sensors and thus the dissolved oxygen decreases. Once the tide recedes further, the river water is contained in the deeper channel where the sonde is located and as the current begins to increase, the low dissolved oxygen water is quickly washed away, and values jump back to normal.
This tidal pattern is consistent throughout most of this deployment although dissolved oxygen data does not always drop to such low levels.

08/26/2017 05:00 – 08/26/2017 10:30 (Turbidity <1> STS, CSM)
Our field logs note that there were crabs and fish in the sonde guard when it was retrieved 09/12/2017. We think that this significant turbidity spike may have been caused by the movement of the animals.

09/04/2017 19:15 – 09/05/2017 01:45 (Specific conductivity, Salinity, Turbidity <1> SWM, CSM)
Our field logs note that there were crabs and fish in the sonde guard when it was retrieved 09/12/2017. We think that these significant turbidity spikes and perhaps even the malfunctioning wiper may have been caused by the animals. The incorrectly parked wiper led to unusual variability in the specific conductance and salinity readings.

09/20/2017 03:00 – 09/25/2017 19:15 (CSM)
There are nine instances in this period where on an ebbing tide, dissolved oxygen measured <4 mg/L. This pattern shows a rapid decrease in dissolved oxygen and then a dramatic 15-minute point rebound, often a 20-40% jump. This is a shallow site and we believe that as the warmer, super-saturated water slowly recedes from the mudflats, it may temporarily stagnate around the sensors and thus the dissolved oxygen decreases. Once the tide recedes further, the river water is contained in the deeper channel where the sonde is located and as the current begins to increase, the low dissolved oxygen water is quickly washed away, and values jump back to normal.
This tidal pattern is consistent throughout most of this deployment although dissolved oxygen data does not always drop to such low levels.

10/2/2017 12:45 - 10/05/2017 23:30 [SWM]
There were numerous wiper malfunctions in this period. Most did not affect the data. The specific conductivity probe was most affected by the incorrectly parked wiper. This caused a dramatic decrease in a single 15-minute reading and then a return to normal values.

Data are missing due to equipment or associated specific probes not being deployed, equipment failure, time of maintenance or calibration of equipment, or repair/replacement of a sampling station platform. Any NANs in the dataset stand for "not a number" and are the result of low power, disconnected wires, or out of range readings. If additional information on missing data is needed, contact the Research Coordinator at the reserve submitting the data.

Great Bay Reserve also had 9 non-SWMP sites in 2017. Please contact the reserve for data, calibration records, and site descriptions. See link below for more information on all additional monitoring sites.

https://scholars.unh.edu/cgi/viewcontent.cgi?article=1036&context=prep

UPR – Upper Piscataqua River

LPR – Lower Piscataqua River

SF – Salmon Falls

LB/SFDP – Little Bay (mouth of the Oyster River)

GW/GB81 – Great Bay West

CML – Coastal Marine Lab

HH – Hampton Harbor

Attachment 3

Calibration and Field Logs for Stations
GRBCML, GRBGW, GRBHH, GRBLB, GRBLP, GRBSF, and GRBUP

NERRS SWMP Water Quality Calibration Log

Great West GW 6/6/17?

Site Name: | File Name: GB 81

Datasonde Maintenance

Date of Calibration: 6/1/17 mm/dd/yyyy | Technician(s): Lara TG

	TURB	ODO		TURB	ODO
Wipers replaced			Wipers park 180° from optics		
Batteries replaced			DO membrane replaced		
Format flash disk			Membrane integrity test		

Datasonde and Probe Identification Numbers

Datasonde	13C100183	183 Bad	DO/ODO	16M101432
pH	14E100909		Conductivity	16T100640
Turbidity	16M101849			

Comments: fDOM 16L103565
chl 16M100741 (PC)

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Pre-Deployment					Post-Deployment		Sensor Diagnostics	
Standards		Before Cal	Calibrated	Error	7/5/17		Pre-Deployment	
%DO @ 100% sat		1 %	1 %		1 %	1 %	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)		1 mm Hg			1 mm Hg		RP DO gain (0.8-1.7)	
Optical %DO @ 100% sat		99.6 %	99.5 %		100.7 %	%	Optical DO gain	1.05
BP cal (Optical)		757 mm Hg			766.3 mm Hg		DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)		757 mm Hg	(760.0 for vented sonde)		766.9 mm Hg	(760.0 for vented)	Cell const (4.6-5.45)	0.47
Depth	0.038 offset	-0.08 m	-0.04 m		0.23 m	-10.332 offset	pH 7 (0 +/- 50 mV)	
SpCond	50 mS/cm	50.44 mS/cm	50 mS/cm		50.02 mS/cm		pH 10 (-180 +/- 50 mV)	See note
pH 7	7	See note					pH 4 (+180 +/- 50 mV)	
pH 10	10						Calculated pH slope	174.3
pH 4							**Post-Deployment**	
Turb	0 NTU	0.16 NTU	0 NTU		0.0 NTU		DO chrg (range 25-75)	
Turb	124 NTU	126.77 NTU	123.98 NTU		122.08		DO warm up test (hi/lo)	
Battery voltage		6.0 V (remove ext power -610, 6038)			5.2 V (remove ext power)		pH 7 (0 +/- 50 mV)	
							pH 10 (-180 +/- 50 mV)	
							pH 4 (+180 +/- 50 mV)	
							Calculated pH slope	0.0

Not post cal'd

Programming

Interval	min	Start date	6/6/17 mm/dd/yyyy	Start time (std time)	hh:mm:ss		
Duration	days	Data file name		Battery life	days		
Free memory	days	Set clock (status)	Y or N	Free bytes (status)	K		
		End date		End time			

Parameters recorded: Date, Time, Temp°C, SpCon, Sal, DO%, DO mg/L, Depth, pH, Turb, Batt

Comments - Pre: pH probe bad (not calibrated 7 = 2.05/-314mV 10 = 6.70/-488mV
T = 19.33 DO #s seem strange Offset = -0.041
T_s = 19.19

Comments - Post: Sonde out of water 4 0 6+ hours w/ each low tide cycle? (check DO).
* fDOM/chl calibrated (not BGA)

NERRS SWMP Water Quality Field Log

Reserve: Great Bay **Station Name:** GB 81 **File Name:**

Deployment Information

Date Deployed: 6/16/17 mm/dd/yyyy **Time:** 8:32 hh mm (24hr) **White Towel:** yes

Technician(s): ZK **Sonde ID #:** 183

Field Data:

Water Temp	14.1	°C	DO Percent	96.5	%
Sp Cond	27.97	mS/cm	DO Conc.	8.86	mg/L
Salinity	17.3	ppt	Other		

Comments Deploy sonde slightly deeper than GPS mark
Grab sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: **Duration:** **Maintenance:**

Comments

Retrieval Information

Date Retrieved: 7/3/17 mm/dd/yyyy **Time:** 10:12 hh mm (24hr) **White Towel:** yes

Technician(s): ZK **Sonde ID #:** 183

Field Data:

Water Temp	20.8	°C	DO Percent	112.1	%
Sp Cond	35.55	mS/cm	DO Conc.	8.76	mg/L
Salinity	22.4	ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light *(e.g. A H, B L)*

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments overlap w/ 910 @ 10:15 crab in top of sonde tube, grab triplicate sample

File Retrieval

Sonde Filename: **Print Graph:** **Probe Malfunction:**

Comments

NERRS SWMP Water Quality Calibration Log

GW
GB1070317

Reserve: | Station Name: GBJ | CDMO Raw File Name:

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	910		pH:	16J101364	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	16M101056	
			Turbidity:	16J100303	
			Conductivity:	16J100649	
			Chlorophyll:	16M101056	
			EXO Wiper:		

Datasonde Maintenance

Date of Calibration: 6/29/17 mm/dd/yyyy | Technician(s): Land

	TURB	ODO	CHL		TURB	
Wipers Replaced:				Wiper parks 180° from optics:		
Batteries Replaced:				DO/ODO membrane replaced:		
Format Flash Disk:				Membrane integrity test:		

Comments: fDOm 16L103566

BR [redacted] 070517 Deployed w/ wrong logging interval

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error			Pre-Deployment	
Temp 22.23 °C	22.3 °C			Check Date			
RP % DO @ 100% sat	%	%		102.5 %	102.4 %	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	100.5 %	100.5 %		98.2 %	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.06
BP @ Cal (Optical)	764.6 mm Hg			763.4 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	764.6 mm Hg	(760.0 for vented sonde)		765.4 mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.476
Depth 0.0 offset	0.116 m	0.06 m		0.073 m	0.0 offset	pH 7 (0 +/- 50 mV)	-20.5
Station Offset						pH 10 (+180 +/- 50 mV)	-194.7
Level 0.0 offset					0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond 50 mS/cm	49.8 mS/cm	50 mS/cm		42.54 mS/cm		Calculated pH slope	174.25
ph 7 7	7.16	7		7.02		(<155 is suspect)	
ph 10 10	10.04	10		9.98		(4/7 will result in negative slope)	
ph 4							
Turb 0 NTU/FNU	0.05 NTU/FNU	0.0 NTU/FNU		0.1 NTU/FNU		Post-Deployment	
Turb 124 NTU/FNU	124.4 NTU/FNU	124.0 NTU/FNU		124.0 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	24.5 °C			°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	0.19 ug/L	0.0 ug/L		ug/L		pH 7 (0 +/- 50 mV)	-19.4
Chl (118) 165.8 ug/L	64.72 ug/L	62.96 ug/L		ug/L	165.8	pH 10 (+180 +/- 50 mV)	-193.4
						pH 4 (+180 +/- 50 mV)	
Battery voltage	5.4 V	(remove ext. power -650,6038)		5.4 V	(remove ext. power)	Calculated pH Slope (<155 is suspect)	0.0

Programming

Interval	mm	Start date:	mm/dd/yyyy	Start time (STD):	24 hh:mm:ss
Duration	days	sonde file name:		Battery life:	days
Free memory	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %
Parameters recorded:					
Temp		Sp Cond:		Salinity:	
DO % sat		DO Conc:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: offset = 0.061

Comments-Post:

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: GTSB1 File Name:

Deployment Information

Date Deployed: 7/3/17 mm dd yyyy Time: 10:12 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 910

Field Data:

Water Temp	20.8	°C	DO Percent	112.1	%
Sp Cond	35.55	mS cm	DO Conc.	8.76	mg/L
Salinity	22.4	ppt	Other		

Comments: overlap w/ 183 @ 10:15, grab triplicate sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 7/5/17 mm dd yyyy Time: 13:31 hh mm (24hr) White Towel: yes

Technician(s): TL, CK Sonde ID #: 910

Field Data:

Water Temp		°C	DO Percent		%
Sp Cond		mS cm	DO Conc.		mg/L
Salinity		ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: recover 910 for calibration, deploy 6176, no sample or handheld

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

GW
GB1070317

Reserve: | Station Name: GBJ | CDMO Raw File Name:

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	910		pH:	16J101364	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	16M101056	
			Turbidity:	16J100303	
			Conductivity:	16J100649	
			Chlorophyll:	16M101056	
			EXO Wiper:		

Datasonde Maintenance

Date of Calibration: 6/29/17 mm/dd/yyyy | Technician(s): Land

	TURB	ODO	CHL		TURB	
Wipers Replaced:				Wiper parks 180° from optics:		
Batteries Replaced:				DO/ODO membrane replaced:		
Format Flash Disk:				Membrane integrity test:		

Comments: fDOm 16L103566

BR [redacted] 070517 Deployed w/ wrong logging interval

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error			Pre-Deployment	
Temp 22.23 °C	22.3 °C			Check Date			
RP % DO @ 100% sat	%	%		102.5 %	102.4 %	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	100.5 %	100.5 %		98.2 %	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.06
BP @ Cal (Optical)	764.6 mm Hg			763.4 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	764.6 mm Hg	(760.0 for vented sonde)		765.4 mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.476
Depth 0.0 offset	0.116 m	0.06 m		0.073 m	0.0 offset	pH 7 (0 +/- 50 mV)	-20.5
Station Offset						pH 10 (+180 +/- 50 mV)	-194.7
Level 0.0 offset					0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond 50 mS/cm	49.8 mS/cm	50 mS/cm		42.54 mS/cm		Calculated pH slope	174.25
ph 7 7	7.16	7		7.02		(<155 is suspect)	
ph 10 10	10.04	10		9.98		(4/7 will result in negative slope)	
ph 4							
Turb 0 NTU/FNU	0.05 NTU/FNU	0.0 NTU/FNU		0.1 NTU/FNU		Post-Deployment	
Turb 124 NTU/FNU	124.4 NTU/FNU	124.0 NTU/FNU		124.0 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	24.5 °C			°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	0.19 ug/L	0.0 ug/L		ug/L		pH 7 (0 +/- 50 mV)	-19.4
Chl (118) 165.8 ug/L	64.72 ug/L	62.96 ug/L		ug/L	165.8	pH 10 (+180 +/- 50 mV)	-193.4
						pH 4 (+180 +/- 50 mV)	
Battery voltage	5.4 V	(remove ext. power -650,6038)		5.4 V	(remove ext. power)	Calculated pH Slope (<155 is suspect)	0.0

Programming

Interval	mm	Start date:	mm/dd/yyyy	Start time (STD):	24 hh:mm:ss
Duration	days	sonde file name:		Battery life:	days
Free memory	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %
Parameters recorded:					
Temp		Sp Cond:		Salinity:	
DO % sat		DO Conc:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: offset = 0.061

Comments-Post:

NERRS SWMP Water Quality Field Log

Reserve: Great Bay **Station Name:** G.B81 **File Name:**

Deployment Information

Date Deployed: 7/5/17 mm dd yyyy **Time:** 13:31 hh mm (24hr) **White Towel:** yes

Technician(s): ZK **Sonde ID #:** 676

Field Data:

Water Temp		°C	DO Percent		%
Sp Cond		mS/cm	DO Conc.		mg/L
Salinity		ppt	Other		

Comments deploy 676, no sample or handheld recover 910

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: **Duration:** **Maintenance:**

Comments

Retrieval Information

Date Retrieved: 8/3/17 mm dd yyyy **Time:** 12:42 hh mm (24hr) **White Towel:** yes

Technician(s): ZK **Sonde ID #:** 676

Field Data:

Water Temp		°C	DO Percent		%
Sp Cond		mS/cm	DO Conc.		mg/L
Salinity		ppt	Other		

no handheld

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light *(e.g. A H, B L)*

Sonde/Guard	T/L, A/M	External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments recover 676, deploy 910, grab sample, no handheld overlap @ 12:45

File Retrieval

Sonde Filename: **Print Graph:** **Probe Malfunction:**

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: | CDMO Raw File Name: GB810 80317

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	910		pH:	16J101364	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	16J100251	
			Turbidity:	16J100383	
			Conductivity:	16J100641	
			Chlorophyll:	16M101056	
			EXO Wiper:	16M101056	

Datasonde Maintenance

Date of Calibration: 8/2/17 mm/dd/yyyy | Technician(s):

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: ADOM 16M100484

Pre/Post Deployment Calibration

Pre-Deployment					Post-Deployment			Sensor Diagnostics	
Standards		Before Cal	Calibrated	Error				Pre-Deployment	
Temp	22.35 °C	22.43			Check Date	8/28			
RP % DO @ 100% sat	/ %		%		/ %	%		RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	/ mm Hg				/			RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	98.5 %	100.5 %			102.4 %	%		Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.08
BP @ Cal (Optical)	764.8 mm Hg				767.8 mm Hg			RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	764.8 mm Hg	(760.0 for vented sonde)			767.8 mm Hg	(760.0 for vented)		Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.518)	0.46
Depth 0.0 offset	0.07 m	0.07 m			0.106	0.0 offset		pH 7 (0 +/- 50 mV)	-17.5
Station Offset	/							pH 10 (-180 +/- 50 mV)	-197.80
Level 0.0 offset						0.0 offset		pH 4 (+180 +/- 50 mV)	
SpCond 50 mS/cm	49.99 mS/cm	50 mS/cm			49.80 mS/cm	49.80		Calculated pH slope (<155 is suspect) (4/7 will result in negative slope)	174.22
ph 7 7	6.95	7			7.1				
ph 10 10	9.94	10			10.09				
ph 4 /					/				
Turb 0 NTU/FNU	0.1 NTU/FNU	0 NTU/FNU			0.50 NTU/FNU			**Post-Deployment**	
Turb 124 NTU/FNU	124.0 NTU/FNU	124 NTU/FNU			124.8 NTU/FNU			RP DO chrg (range 25-75)	
Rhodamine WT Temp	°C				°C			RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	ug/L	ug/L			0.02 ug/L			pH 7 (0 +/- 50 mV)	-23.6
Chl (118) 165.8 ug/L	ug/L	ug/L			ug/L	165.8		pH 10 (-180 +/- 50 mV)	-198. -198.0
								pH 4 (+180 +/- 50 mV)	
Battery voltage	4.8 V	(remove ext. power <650,6038)			4.6 V	(remove ext. power)		Calculated pH Slope (<155 is suspect)	174.04

Programming

Interval	min	Start date	mm/dd/yyyy	Start time (STD)	24 hh:mm:ss
Duration	days	sonde file name:		Battery life:	days
Free memory	days	Set clock (status):	Y or N	Free memory (status)	bytes (b) or %
Parameters recorded:					
Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre:

Comments-Post: DO 1.5% high - ↑ Fouling at end of probe? ZSA - 0.02

a lot of mud at bottom of guard.

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: GB81 File Name:

Deployment Information

Date Deployed: 8/3/17 mm dd yyyy Time: 12:42 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 910

Field Data:

Water Temp		°C	DO Percent		%
Sp Cond		mS cm	DO Conc.		mg/L
Salinity		ppt	Other		

Comments recover 676, deploy 910, overlap @ 12:45, grab sample
DO handheld, line could use float to prevent fouling

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 8/29/17 mm dd yyyy Time: 14:20 hh mm (24hr) White Towel: yes

Technician(s): ZK, LM Sonde ID #: 910

Field Data:

Water Temp	20.16	°C	DO Percent	113.3	%
Sp Cond	34.99	mS cm	DO Conc.	8.87	mg/L
Salinity	25.16	ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments retriver 910, deploy 3174, grab sample, overlap at 14:30

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

GW

Reserve: | Station Name: GB81 | CDMO Raw File Name: GB8108291 7

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	3194		pH:	17G10199	
Vented:		Model Number	RP DO:		DO OK
Nickname:			ODO:	13M10214	
			Turbidity:	13M102199	
			Conductivity:	16T10064.5	
			Chlorophyll:	16M101034	
			EXO Wiper:	19A10000	

Date of Calibration: 9/25/17 (mm/dd/yyyy) | Technician(s):

Datasonde Maintenance

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: new pH sp 17G10001 | fDOm 16M10018

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error	9/25		Pre-Deployment	
Temp 21.98 °C	22.04			Check Date			
RP % DO @ 100% sat	%	%		%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	101.0 %	101.2 %		100.3	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.18
BP @ Cal (Optical)	768.3 mm Hg			764.3 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	768.3 mm Hg	(760.0 for vented sonde)		764.5 mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.477
Depth 0.0 offset	0.26 m	0.12 m		0.066 m	0.0 offset	pH 7 (0 +/- 50 mV)	3.08
Station Offset	0.122			0.061		pH 10 (-180 +/- 50 mV)	-176.53
Level 0.0 offset					0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond mS/cm	50.08 mS/cm	50 mS/cm		49.7 mS/cm		Calculated pH slope (<155 is suspect) (4/7 will result in negative slope)	0.0 179.61
ph 7	6	7		7.08			
ph 10	9.11	10		10.02			
ph 4							
Turb NTU/FNU	+0.0 NTU/FNU	0 NTU/FNU		0.3 NTU/FNU			
Turb NTU/FNU	125.33 NTU/FNU	124.6 NTU/FNU		123.96 NTU/FNU			
Rhodamine WT Temp	°C			°C			
Chl (0) 0.0 ug/L	ug/L	ug/L		ug/L		Post-Deployment	
Chl (118) 165.8 ug/L	ug/L	ug/L		ug/L	165.8	RP DO chrg (range 25-75)	
						RP DO warm up test (hi/lo)	
						pH 7 (0 +/- 50 mV)	-1.9
						pH 10 (-180 +/- 50 mV)	-178.1
						pH 4 (+180 +/- 50 mV)	
Battery voltage	6.0 V	(remove ext. power ~650,6038)		4.6 V	(remove ext. power)	Calculated pH Slope (<155 is suspect)	176.2 0.0

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hh:mm:ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %

Parameters recorded:

Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: CE/BGA-PC cal'd fDOm not cal'd

Comments-Post: CE/BGA/fDOm post cal & O OK

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: GB81 File Name:

Deployment Information

Date Deployed: 8/29/17 mm/dd/yyyy Time: 14:20 hh:mm (24hr) White Towel: yes

Technician(s): ZK, LM Sonde ID #: 3174

Field Data:

Water Temp	20.6	°C	DO Percent	113.3 %
Sp Cond	39.99	mS/cm	DO Conc.	8.87 mg/L
Salinity	25.6	ppt	Other	

Comments: recover 910, deploy 3174, grab sample, overlap at 14:30 overlap

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 9/25/17 mm/dd/yyyy Time: 8:33 hh:mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 3174

Field Data:

Water Temp	19.8	°C	DO Percent	98.4 %
Sp Cond	40.32	mS/cm	DO Conc.	7.77 mg/L
Salinity	25.7	ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: recover 3174, last reading at 830, grab sample some mud in top of anchor tube/enclosure

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

GW

Reserve: | Station Name: | CDMO Raw File Name: GB81092517

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	3174		pH:	16G101499	4pcK
Vented:		Model Number	RP DO:		
Nickname:			ODO:	13M102174	4pcK
			Turbidity:	16M101849	
			Conductivity:	16J100645	
			Chlorophyll:	16M101054	
			EXO Wiper:	14H100026	

Datasonde Maintenance

Date of Calibration: 9/25/17 (mm/dd/yyyy) | Technician(s):

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: fDOM 17F101082

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error			Pre-Deployment	
Temp 20.53	12.58			Check Date 10/23			
RP % DO @ 100% sat	%	%		%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	100.5	100.6		101.6	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.18
BP @ Cal (Optical)	764.2 mm Hg			764.2 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	764.2 mm Hg	(760.0 for vented sonde)		764.2 mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.47
Depth 0.0 offset	0 m	0.064		0.126	0.0 offset	pH 7 (0 +/- 50 mV)	-0.70
Station Offset 0.056				0.124		pH 10 (-180 +/- 50 mV)	-178.24
Level 0.0 offset					0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond mS/cm	49.82 mS/cm	50 mS/cm		50.1 mS/cm		Calculated pH slope	0.0
ph 7 7	7.07	7		7.17		(<155 is suspect)	177.35
ph 10 10	10.02	10		10.09		(4/7 will result in negative slope)	
ph 4							
Turb 0 NTU/FNU	0.5 NTU/FNU	0 NTU/FNU		0.3 NTU/FNU		Post-Deployment	
Turb 124 NTU/FNU	124.04 NTU/FNU	124 NTU/FNU		0.20 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	°C			°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	ug/L	ug/L		ug/L		pH 7 (0 +/- 50 mV)	-10.7
Chl (118) 165.8 ug/L	ug/L	ug/L		ug/L	165.8	pH 10 (-180 +/- 50 mV)	-182.2
						pH 4 (+180 +/- 50 mV)	
Battery voltage	4.5 V	(remove ext. power <6.50/6038)		Dead	(remove ext. power)	Calculated pH Slope (<155 is suspect)	171.5

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hh mm ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (b) or %
Parameters recorded:					
Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc.:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: Chl/BGA/fDOM cal'd Depth pre-running low

Comments-Post: Batteries dead – last reading 10/7 13:00

Very H fouling – foces clean

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: GBSI File Name:

Deployment Information

Date Deployed: 9/25/17 mm dd yyyy Time: 12:14 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 3174

Field Data:

Water Temp	20.5	°C	DO Percent	108.3	%
Sp Cond	40.10	mS/cm	DO Conc.	8.45	mg/l
Salinity	25.2	ppt	Other		

Comments: deploy 3174, first reading @ 1215

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments:

Retrieval Information

Date Retrieved: 10/25/17 mm dd yyyy Time: 935 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 3174

Field Data:

Water Temp	15	°C	DO Percent	91.5	%
Sp Cond	39.90	mS/cm	DO Conc.	7.98	mg/l
Salinity	35.1	ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard	A/L	External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: recover 3174, ~~sensors~~ on deployment until late today

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments:

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: GB81 File Name:

Deployment Information

Date Deployed: 10/9/17 mm dd yyyy Time: 11:30 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 3174

Field Data:

Water Temp	17.6	°C	DO Percent	79.0	%
Sp Cond	42.24	mS/cm	DO Conc.	6.42	mg/L
Salinity	27.2	ppt	Other		

Comments: midway sample, small crab, shrimp, and fish in sonde tube. Sensors clean

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: mm dd yyyy Time: hh mm (24hr) White Towel: yes

Technician(s): Sonde ID #:

Field Data:

Water Temp		°C	DO Percent		%
Sp Cond		mS/cm	DO Conc.		mg/L
Salinity		ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B H)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

GW

Reserve: | Station Name: | CDMO Raw File Name: GB2110317

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number
Datasonde:	178	16M
Vented:		Model Number
Nickname:		

	Serial Number	Model Number
pH:	14G101499	7100K
RP DO:		
ODO:	16M101435	
Turbidity:	16M101479	
Conductivity:	16M100101	
Chlorophyll:	16M100141	
EXO Wiper:	16M101302	

Datasonde Maintenance

Date of Calibration: 10/23/17 mm/dd/yyyy | Technician(s): LM

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: fDOM 17F101082

Pre/Post Deployment Calibration

Pre-Deployment	Standards	Before Cal	Calibrated	Error
Temp	20.53	20.53		
RP % DO @ 100% sat				
BP @ cal (Rapid Pulse)				
Optical %DO @ 100% sat	101.3	101.6		
BP @ Cal (Optical)	771.6 mm Hg			
Baro. Pres. (Depth Calib)	771.6 mm Hg	(760.0 for vented sonde)		
Depth 0.0 offset	0.27 m	0.157		
Station Offset		0.157		
Level 0.0 offset				
SpCond mS/cm	50.06 mS/cm	50 mS/cm		
ph 7	7.14	7		
ph 10	10.08	10		
ph 4				
Turb NTU/FNU	0.03 NTU/FNU	0 NTU/FNU		
Turb NTU/FNU	124.8 NTU/FNU	124 NTU/FNU		
Rhodamine WT Temp	°C			
Chl (0) 0.0 ug/L	ug/L	ug/L		
Chl (118) 165.8 ug/L	ug/L	ug/L		
Battery voltage	5.9 V	(remove ext. power ~650,6038)		

Post-Deployment		
Check Date	11/20	
	%	%
	100.0	%
	758.1 mm Hg	
	758.1 mm Hg	(760.0 for vented)
	0.028	0.0 offset
	-0.027	
		0.0 offset
	49.99 mS/cm	
	6.98	
	10.00	
	0.20 NTU/FNU	
	122.5 NTU/FNU	
	21.2 °C	
	ug/L	
	ug/L	165.8
	5.0 V	(remove ext. power)

Sensor Diagnostics	
Pre-Deployment	
RP DO chrg (range 25-75)	
RP DO gain (0.3-1.4)	
Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.08
RP DO warm up test (hi/lo)	
Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.47
pH 7 (0 +/- 50 mV)	-8.94
pH 10 (-180 +/- 50 mV)	-187.90
pH 4 (+180 +/- 50 mV)	
Calculated pH slope (<155 is suspect) (4/7 will result in negative slope)	0.0 172.96
Post-Deployment	
RP DO chrg (range 25-75)	
RP DO warm up test (hi/lo)	
pH 7 (0 +/- 50 mV)	-7.8
pH 10 (-180 +/- 50 mV)	-180.7
pH 4 (+180 +/- 50 mV)	
Calculated pH Slope (<155 is suspect)	0.0

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hr mm:ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (L) or %

Parameters recorded

Temp		Sp Cond		Salinity	
DO % sat		DO Conc.		Depth/Level	
pH		Turbidity		Chlorophyll	
		pH mV		Battery Voltage	

Comments-Pre: Chl/BGA-PC cal'd / fDOM not (cal'd 9/25)

Comments-Post: BGA-PC 0.07 fDOM 0.03

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: GBS1 File Name:

Deployment Information

Date Deployed: 10/23/17 mm/dd/yyyy Time: 11:35 hh:mm (24hr) White Towel: yes

Technician(s): ZE Sonde ID #: 178

Field Data:

Water Temp	14.5	°C	DO Percent	90.7	%
Sp Cond	42.42	mS/cm	DO Conc.	7.92	mg/l
Salinity	27.3	ppt	Other		

Comments: deploy 178. first reading at 11:45, grab sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments:

Retrieval Information

Date Retrieved: 11/20/17 mm/dd/yyyy Time: 9:54 hh:mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 178

Field Data:

Water Temp	5.0	°C	DO Percent	95.8	%
Sp Cond	32.26	mS/cm	DO Conc.	10.69	mg/l
Salinity	19.7	ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: retrieve 178, deploy 179, overlap at 1000, grab sample

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments:

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: GBB1 File Name:

Deployment Information

Date Deployed: 11/7/17 mm/dd/yyyy Time: 16:30 hh:mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 178

Field Data:

Water Temp	11.2	°C	DO Percent	88.8	%
Sp Cond	28.19	mS/cm	DO Conc.	8.79	mg/l
Salinity	17.4	ppt	Other		

Comments: midway sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: mm/dd/yyyy Time: hh:mm (24hr) White Towel: yes

Technician(s):

Field Data:

Water Temp		°C
Sp Cond		mS/cm
Salinity		ppt

Fouling Presence: Type: A=algae, B=barnacles, C=
Amount: H=heavy, M=moderate

Sonde Guard	
Temp/Cond	
pH	

Comments

Sonde Filename:

Comments

11/9/17
CP pulled up sonde accidentally thinking it drifted from GB. Replaced back in slightly wrong spot (just NW of LR channel) w/ ~5-6ft of slack line 1 hr off high tide (10.6' Portland). out of water 1535-1555 est.

11/13/17
CP + ZK moved to waypoint from T6 ~1240 but ZK realized this spot was previously relocated b/c of low water, so we moved it one last time to ZK's spot (~75ft closer to channel, eastward). Took waypoint Back in water ~1307

page log
ph status
d&T S&H

NERRS SWMP Water Quality Calibration Log

Reserve: | Site Name: GB 81 | File Name: GW GB81 11 2017

Datasonde Maintenance

Date of Calibration: 11/14/17 mm/dd/yyyy | Technician(s): LM IG

	TURB	ODO		TURB	ODO
Wipers replaced			Wipers park 180° from optics		
Batteries replaced			DO membrane replaced		
Format flash disk			Membrane integrity test		

Datasonde and Probe Identification Numbers

Datasonde	16M102179	DO/ODO	16M101431
pH	16M102424	Conductivity	16J100643
Turbidity	14H102919	Wiper	16M101399

Comments: fDOM 16M101489
Chl 16M101053

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

	Pre-Deployment Standards	Before Cal	Calibrated	Error	Post-Deployment		Sensor Diagnostics
							Pre-Deployment
%DO @ 100% sat	/ %	/ %	/ %		/ %	/ %	RP DO chrg (range 25-75) /
BP @ cal (Rapid Pulse)	/ mm Hg	/ mm Hg			/ mm Hg		RP DO gain (0.8-1.7) /
Optical %DO @ 100% sat		101.8	101.3		100.3	%	Optical DO gain 1.08
BP cal (Optical)		770.6 mm Hg			776.4 mm Hg		DO warm up test (hi/lo)
Baro. Pres. (Depth Calib)		770.8 mm Hg	(760.0 for vented sonde)		761.4 mm Hg	(760.0 for vented)	Cell const (4.6-5.45) 0.47
Depth 0.038 offset		0.26 m	0.14 m		0.013 m	-10.332 offset	pH 7 (0 +/- 50 mV) -14.03
			0.143			0.020	pH 10 (-180 +/- 50 mV) -185.19
SpCond 50 mS/cm		49.82 mS/cm	50 mS/cm		49.98 mS/cm		pH 4 (+180 +/- 50 mV)
							Calculated pH slope 174.3
pH 7	7	7.06	7		7.14		175.16
pH 10	10	10.08	10		10.15		**Post-Deployment**
pH 4							DO chrg (range 25-75) /
Turb 0 NTU		-0.03 NTU	0 NTU		0.0 NTU		DO warm up test (hi/lo) /
Turb 124 NTU		123.1 NTU	124.09		124.97		pH 7 (0 +/- 50 mV) -18.1
							pH 10 (-180 +/- 50 mV) -192.7
							pH 4 (+180 +/- 50 mV)
Battery voltage		6.2 V (remove ext. power -650, 6038)			5.7 V (remove ext power)		Calculated pH slope 174.6

Programming

Interval	min	Start date	mm/dd/yyyy	Start time (std time)	hh mm ss
Duration	days	Data file name		Battery life	days
Free memory	days	Set clock (status)	Y or N	Free bytes (status)	K
		End date		End time	

Parameters recorded: Date, Time, Temp°C, SpCon, Sal, DO%, DO mg/L, Depth, pH, Turb, Batt

Comments - Pre: Chl, BGA-PC, fDOM cal'd
T = 20.97
T_0 = 20.99

Comments - Post: Sonde clean
Chl = -0.1
BGA = -0.07
fDOM = -0.01

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: GB81 File Name:

Deployment Information

Date Deployed: 11/20/17 mm/dd/yyyy Time: 9:54 hh:mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 179

Field Data:

Water Temp	5.0	°C	DO Percent	95.8 %
Sp Cond	52.26	mS/cm	DO Conc	10.69 mg/L
Salinity	19.7	ppt	Other	

Comments: recover 178. deploy 179, overlap at 1000, grab sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments:

Retrieval Information

Date Retrieved: 12/11/17 mm/dd/yyyy Time: 14:02 hh:mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 179

Field Data:

Water Temp	3.1	°C	DO Percent	87.5 %
Sp Cond	24.07	mS/cm	DO Conc.	10.60 mg/L
Salinity	14.3	ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: recover 179 for season, overlap w/ handheld at 1400
no sample

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments:

HH07[illegible]

NERRS SWMP Water Quality Calibration Log

Reserve: Sprdl 675 | Station Name: HH | CDMO Raw File Name: ~~CML0907.17~~ ? ~~EL0[illegible]~~ ?

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	~~3~~ 4		pH:	17E101760	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	17F102902	
			Turbidity:	17E103581	
			Conductivity:	17E104490	
			Chlorophyll:	17F102112	
			EXO Wiper:	17101859	

Datasonde Maintenance

Date of Calibration: 6/29/17 (mm/dd/yyyy) | Technician(s): Jared

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: Wear [illegible] NEW probes EDOM 17F[illegible]

Pre/Post Deployment Calibration

Pre-Deployment	Standards	Before Cal	Calibrated	Error	Post-Deployment		Sensor Diagnostics	
					8/28/17		**Pre-Deployment**	
Temp	22.24 °C	22.3 °C			Check Date			
RP % DO @ 100% sat	%	%			%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg						RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	95.4 %	100.6 %			101.7	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.05
BP @ Cal (Optical)	764.6 mm Hg				771.4 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	764.6 mm Hg	(760.0 for vented sonde)			771.4 mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.49
Depth 0.0 offset	10.46 m	0.06 m			0.159	0.0 offset	pH 7 (0 +/- 50 mV)	4.6
Station Offset					0.156		pH 10 (-180 +/- 50 mV)	-178.6
Level 0.0 offset						0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond 50 mS/cm	50.38 mS/cm	50 mS/cm			50.18 mS/cm		Calculated pH slope (<155 is suspect) (4/7 will result in negative slope)	174.07
ph 7	7.08	7			7.10			
ph 10	10.04	10			10.18			
ph 4								
Turb 0 NTU/FNU	0.8 NTU/FNU	0.0 NTU/FNU			0.2 NTU/FNU		**Post-Deployment**	
Turb 124 NTU/FNU	123.45 NTU/FNU	124 NTU/FNU			124.89 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	24.5 °C				°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	-0.02 ug/L	0.02 ug/L			0.06		pH 7 (0 +/- 50 mV)	-10.3
Chl (118) 165.8 ug/L	58.14 ug/L	63.0 ug/L			ug/L	165.8	pH 10 (-180 +/- 50 mV)	-187.5
							pH 4 (+180 +/- 50 mV)	
Battery voltage	6.0 V	(remove ext. power ~650,6038)			4.7 V	(remove ext. power)	Calculated pH Slope (<155 is suspect)	

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hr mm:ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (b) or %
Parameters recorded:					
Temp		Sp Cond:		Salinity:	
DO % sat		DO Conc.:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: offset = 0.061

Comments-Post:

B6A - post
10) 0.03

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: | CDMO Raw File Name: HH082317

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	176		pH:	16m103216	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	16m101436	
			Turbidity:	16m101478	
			Conductivity:	16m100099	
			Chlorophyll:	16m100743	
			EXO Wiper:	16m101301	

Datasonde Maintenance

Date of Calibration: mm/dd/yyyy | Technician(s):

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test			

Comments: fDOM 16m101490

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error	10/2/17		Pre-Deployment	
Temp 23.24	23.27 °C			Check Date			
RP % DO @ 100% sat	%	%		%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	99.9 %	99.7 %		101.5 %	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.05
BP @ Cal (Optical)	758.2 mm Hg			772.4 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	mm Hg	(760.0 for vented sonde)		772 mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.47
Depth 0.0 offset	-0.03 m	-0.03		0.163	0.0 offset	pH 7 (0 +/- 50 mV)	-20.20
Station Offset	-0.027					pH 10 (+180 +/- 50 mV)	-196.53
Level 0.0 offset				0.169	0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond mS/cm	50.06 mS/cm	50 mS/cm		49.96 mS/cm		Calculated pH slope (<155 is suspect) (4/7 will result in negative slope)	0.0 176.33
ph 7	6.96	7		7.15			
ph 10	9.96	10		10.08			
ph 4							
Turb NTU/FNU	0.03 NTU/FNU	0 NTU/FNU		0.2 NTU/FNU		Post-Deployment	
Turb NTU/FNU	123.39 NTU/FNU	123.9 NTU/FNU		125.5 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	°C			°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	ug/L	ug/L		0.20 ug/L		pH 7 (0 +/- 50 mV)	-29.0
Chl (118) 165.8 ug/L	ug/L	ug/L		166 ug/L	165.8	pH 10 (+180 +/- 50 mV)	-199.5
						pH 4 (+180 +/- 50 mV)	
Battery voltage	4.7 V	(remove ext. power <650,6038)		3.9 V	(remove ext. power)	Calculated pH Slope (<155 is suspect)	170.5

Programming

Interval	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hh mm ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %
Parameters recorded:					
Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc.:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: Chl/BGA cal'd fDOM checked not cal'd

Comments-Post: Very lt mud - Forces clea

Chl @ 0 0.20
BGA " " fDOM 0.07

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: 1111 File Name:

Deployment Information

Date Deployed: 8/23/17 mm/dd/yyyy Time: 0900 hh:mm (24hr) White Towel: yes

Technician(s): TG Sonde ID #: 176

Field Data:

Water Temp	20.6	°C	DO Percent	60.3 %
Sp Cond	41.29	mS/cm	DO Conc	5.24 mg/L
Salinity	~~31.8~~ 26.5	ppt	Other	

Comments: recover (0755) sensors clean
meter @ 0900, grab @ 905 by hand

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: mm/dd/yyyy Time: hh:mm (24hr) White Towel: Yes

Technician(s): Sonde ID #:

Field Data:

Water Temp		°C	DO Percent	%
Sp Cond		mS/cm	DO Conc	mg/L
Salinity		ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: | CDMO Raw File Name: HH092817

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number	Model Number		Serial Number	Model Number
Datasonde:	676	14A10067[illegible]		RP DO:		HP OK
Vented:				ODO:	14G101670	cap OK
Nickname:				Turbidity:	13A10 2201	
				Conductivity:	16J100643	
				Chlorophyll:	17F10211[illegible]	
				EXO Wiper:	14J10131 7	

Datasonde Maintenance

Date of Calibration: 9/25/17 (mm/dd/yyyy) | Technician(s):

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: fDOM 16m100182

Pre/Post Deployment Calibration

Pre-Deployment					Post-Deployment		Sensor Diagnostics	
	Standards	Before Cal	Calibrated	Error			**Pre-Deployment**	
Temp	23.58	23.64 °C			Check Date 11/6/17			
RP % DO @ 100% sat		%	%		%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)		mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	101.5 %	100.5			99.1 %	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.04
BP @ Cal (Optical)	763.6 mm Hg				758 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	763.6 mm Hg	(760.0 for vented sonde)			758 mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.47
Depth 0.0 offset	-0.04 m	0.05 m			-0.029 m	0.0 offset	pH 7 (0 +/- 50 mV)	-13.95
Station Offset	0.048				-0.018		pH 10 (-180 +/- 50 mV)	-191.11
Level 0.0 offset						0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond mS/cm	49.78 mS/cm	50 mS/cm			49.38 mS/cm		Calculated pH slope	0.0
ph 7	7.05	7			7.10		(<135 is suspect)	177.16
ph 10	10	10			9.97		(4/7 will result in negative slope)	
ph 4								
Turb NTU/FNU	0.43 NTU/FNU	0.01 NTU/FNU			0.97 NTU/FNU		**Post-Deployment**	
Turb NTU/FNU	123.96 BU/FNU	124 NTU/FNU			123 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	°C				°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	ug/L	ug/L			-0.05		pH 7 (0 +/- 50 mV)	-19.7
Chl (118) 165.8 ug/L	ug/L	ug/L			ug/L	165.8	pH 10 (-180 +/- 50 mV)	-188.5
							pH 4 (+180 +/- 50 mV)	
Battery voltage	6.3 V	(remove ext. power ~650,640)			4.8	(remove ext. power)	Calculated pH Slope (<135 is suspect)	168.8

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hh mm ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %
Parameters recorded					
Temp:		Sp Cond:		Salinity:	
DO % sat		DO Conc.:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: ok 1864 -PC/fDOM cal'd

Comments-Post: BGA-PC 0.07
fDOM - 0.37
Excess clean
Probes have clumps of mud/organic matter on the

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: HH File Name:

Deployment Information

Date Deployed: 9/20/17 mm dd yyyy Time: 1115 hh mm (24hr) White Towel: yes

Technician(s): TG Sonde ID #: 676

Field Data:

Water Temp	21.8	°C	DO Percent	67 %
Sp Cond	42.93	mS cm	DO Conc.	4.98 mg/L
Salinity	27.7	ppt	Other	

Comments 1115 overlap, sonde had been under dock & anchor maybe fallen over, moved. Partner out

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments recover 176, clean

Retrieval Information

Date Retrieved: mm dd yyyy Time: hh mm (24hr) White Towel: yes

Technician(s): Val sample 9/29 Sonde ID #: 0745

Field Data:

Water Temp		°C	DO Percent	%
Sp Cond		mS cm	DO Conc.	mg/L
Salinity		ppt	Other	

mid depth, not sonde depth

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: | CDMO Raw File Name: HH110317

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde	910	16J100910	pH:	16J101364	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	16J100251	
			Turbidity:	16J100303	
			Conductivity:	16J100641	
			Chlorophyll:	16M100743	
			EXO Wiper:	16J100192	

Datasonde Maintenance

Date of Calibration: 10/30/17 (mm/dd/yyyy) | Technician(s): LM

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: fDOM 16M100181

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error			Pre-Deployment	
Temp 23.06	23.14			Check Date 11/15/17			
RP % DO @ 100% sat	%	%		%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	99.0	98.6		101.0	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.060
BP @ Cal (Optical)	749.1 mm Hg			762.3 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	749.1 mm Hg	(760.0 for vented sonde)		762.3 mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.47
Depth 0.0 offset	-0.49 m	-0.16 m		0.026 m	0.03 m offset	pH 7 (0 +/- 50 mV)	-14.0
Station Offset		-0.149				pH 10 (-180 +/- 50 mV)	-184.3
Level 0.0 offset					0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond 50 mS/cm	49.84 mS/cm	50 mS/cm		49.98 mS/cm		Calculated pH slope (<155 is suspect)	170.33
ph 7	6.87	7		7.09		(4/7 will result in negative slope)	
ph 10	9.75	10		10.14			
ph 4							
Turb 0 NTU/FNU	-0.03 NTU/FNU	0 NTU/FNU		0.1 NTU/FNU		Post-Deployment	
Turb 124 NTU/FNU	123.6 NTU/FNU	124 NTU/FNU		124.8 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	°C			°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	ug/L	ug/L		0.06		pH 7 (0 +/- 50 mV)	-19.0
Chl (318) 165.8 ug/L	ug/L	ug/L		ug/L	165.8	pH 10 (-180 +/- 50 mV)	-191.1
						pH 4 (+180 +/- 50 mV)	
Battery voltage	6.0 V	(remove ext. power ~650,6038)		5.2 V	(remove ext. power)	Calculated pH Slope (<155 is suspect)	172.7

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hh mm ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (L) or %

Parameters recorded:

Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc.:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: pH low Chl/BGA-PC cal'd (fDOM not - cal'd 10/2)

Comments-Post: Wiper fell off - light fouling (mud, loose algae) fDOM 0.80 BGA-PC 0.03

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: HH File Name:

Deployment Information

Date Deployed: 11/3/19 mm dd yyyy Time: 0900 hh mm (24hr) White Towel: yes

Technician(s): TG Sonde ID #: 676

Field Data:

Water Temp	°C	DO Percent	%
Sp Cond	mS/cm	DO Conc.	mg/l
Salinity	ppt	Other	

no meter

Comments val sample, reverse overlap @ 0900 anchor line was fouled so swapped sonde 18, prob ~ 0845 reader 676, clean

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: mm dd yyyy Time: hh mm (24hr) White Towel: yes

Technician(s): Sonde ID #:

Field Data:

Water Temp	°C	DO Percent	%
Sp Cond	mS/cm	DO Conc.	mg/l
Salinity	ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: HH File Name:

Deployment Information

Date Deployed: mm dd yyyy Time: hh mm (24hr) White Towel: yes

Technician(s): Sonde ID #:

Field Data:

Water Temp °C
Sp Cond mS/cm
Salinity ppt

DO Percent %
DO Conc. mg/l
Other

Comments

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 12/14/17 mm dd yyyy Time: 1210 hh mm (24hr) White Towel: yes

Technician(s): JG Sonde ID #: 970

Field Data:

Water Temp 7.1 °C
Sp Cond 42.4 mS/cm
Salinity 23 ppt

DO Percent 91.8 %
DO Conc 10.27 mg/l
Other

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde/Guard External Screen
Temp/Cond Dissolved Oxygen
pH Turbidity

Comments brush had fallen off, sensors clean
fDOM & cond val sample

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

page log

ph status

J&T S&H

Reserve:

NERRS SWMP Water Quality Calibration Log

Little Bay CLB 6/5/17 deploy

Site Name:

File Name: SFDP502

Datasonde Maintenance

Date of Calibration: 5/31/17 mm/dd/yyyy

Technician(s): Lara TG

	TURB	ODO
Wipers replaced		
Batteries replaced		
Format flash disk		

	TURB	ODO
Wipers park 180° from optics		
DO membrane replaced		
Membrane integrity test		

Datasonde and Probe Identification Numbers

Datasonde	178
pH	16M102423
Turbidity	16M101479
DO/ODO	16M101435
Conductivity	16M100101

Comments: Chl 16M100742 (PC)
fDOM 16M100186

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Pre-Deployment					Post-Deployment			
Standards		Before Cal		Calibrated	Error			
%DO @ 100% sat		1	%	1	%		7/5/17	
BP @ cal (Rapid Pulse)		1	mm Hg			1	mm Hg	1 %
Optical %DO @ 100% sat		91.3	%	100.3	%	101.9		%
cal (Optical)		762	mm Hg			766.6	mm Hg	
Baro. Pres. (Depth Calib)		762	mm Hg	(760.0 for vented sonde)		766.0	mm Hg	(760.0 for vented)
Depth	0.038 offset	10.3	m	0.07	m	0.113	m	-10.332 offset
SpCond	50 mS/cm	50.5	mS/cm	50	mS/cm	50.06	mS/cm	
pH 7	7	7.13		7		7.13		
pH 10	10	10.23		10		10.08		
pH 4	/	/				/		
Turb	0 NTU	+0.16	NTU	0	NTU	0.2	NTU	
Turb	124 NTU	128.5	NTU	124	NTU	124.7	NTU	
Battery voltage		5.9	V (remove ext. power -610, 6038)				V (remove ext. power)	

Sensor Diagnostics	
Pre-Deployment	
RP DO chrg (range 25-75)	/
RP DO gain (0.8-1.7)	/
Optical DO gain	1.10
DO warm up test (hi/lo)	/
Cell const (4.6-5.45)	0.40
pH 7 (0 +/- 50 mV)	-7.35
pH 10 (-180 +/- 50 mV)	-187.17
pH 4 (+180 +/- 50 mV)	
Calculated pH slope	179.82
Post-Deployment	
DO chrg (range 25-75)	/
DO warm up test (hi/lo)	/
pH 7 (0 +/- 50 mV)	-18.18
pH 10 (-180 +/- 50 mV)	-194
pH 4 (+180 +/- 50 mV)	
Calculated pH slope	0.0

Programming

Interval	min	Start date	6/5/17 mm/dd/yyyy	Start time (sst time)	hh mm ss
Duration	days	Data file name		Battery life	days
Free memory	days	Set clock (status)	Y or N	Free bytes (status)	K
		End date		End time	

Parameters recorded: Date, Time, Temp°C, SpCon, Sal, DO%, DO mg/L, Depth, pH, Turb, Batt

Downlo

Comments - Pre: New sonde + probes Offset 0.027
Chl no true=63.4 Temp = 20.1 → 20° Temp = 18.68
fDOM 69.31 blank -0.32 → -0.01 T° = 18.69

Comments - Post:
Offset = 0.095

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: SFDP File Name:

43, 12603
-70, 86584

Deployment Information

Date Deployed: 6/6/17 mm dd yyyy Time: 1220 hh mm (24hr) White Towel: yes

Technician(s): TG, JK Sonde ID #: 178

Field Data:

Water Temp	14.1	°C	DO Percent	92.1 %
Sp Cond	21.41	mS cm	DO Conc.	8.418 mg/L
Salinity	19.6	ppt	Other	

Comments deployed a little deeper than mark grab sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 7/5/17 mm dd yyyy Time: 10:54 hh mm (24hr) White Towel: yes

Technician(s): JK Sonde ID #: 178

Field Data:

Water Temp	21.1	°C	DO Percent	108.1 %
Sp Cond	1.218	mS cm	DO Conc.	9.73 mg/L
Salinity	0.6	ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments recover 178, overlap w/ 911 @ 10:45, algae present grab triplicate sample

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

Little Bay
SFDP070317

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: SFDP | CDMO Raw File Name:

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	911		pH:	16J101363	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	16J100252	
			Turbidity:	16J100302	
			Conductivity:	16H103794	
			Chlorophyll:	16M101652	
			EXO Wiper:		

Datasonde Maintenance

Date of Calibration: 6/29/17 mm/dd/yyyy | Technician(s): Laura

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: fDOm 16M100185

Deployed w/ wrong logging interval - reset 7/5/17

Pre/Post Deployment Calibration 7/9/17

Pre-Deployment				Post-Deployment		
Standards	Before Cal	Calibrated	Error	21.01	21.09	
Temp 22.20 °C	22.28 °C			Check Date		
RP % DO @ 100% sat	%	%		%	%	
BP @ cal (Rapid Pulse)	mm Hg					
Optical %DO @ 100% sat 100.9 %	100.7 %			100.3	%	
BP @ Cal (Optical) 764.6 mm Hg				764 mm Hg		
Baro. Pres. (Depth Calib) 764.6 mm Hg (760 ± for vented sonde)				764.60 mm Hg (760 ± for vented)		
Depth 0.0 offset	0.15 m	0.06 m		0.06 m	0.0 offset	
Station Offset				0.061		
Level 0.0 offset					0.0 offset	
SpCond 50 mS/cm	49.8 mS/cm	50 mS/cm		50.08 mS/cm		
ph 7 7	7.19	7		7.03		
ph 10 10	10.05	10		10.10		
ph 4						
Turb 0 NTU/FNU	0.08 NTU/FNU	0.0 NTU/FNU		0.03 NTU/FNU		
Turb 124 NTU/FNU	124.3 NTU/FNU	124 NTU/FNU		124.7 NTU/FNU		
Rhodamine WT Temp	24.5 °C			°C		
Chl (0) 0.0 ug/L	-0.17 ug/L	0.01 ug/L		ug/L		
Chl (118) 165.8 ug/L	64.16 ug/L	63.02 ug/L		ug/L	165.8	
Battery voltage	15.3 V	(remove ext. power ~650,6038)		14.8 V	(remove ext. power)	

RP DO chrg (range 25-75)	
RP DO gain (0.7-1.4)	
Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.05
RP DO warm up test (hi/lo)	
Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.46
pH 7 (0 +/- 50 mV)	-17.76
pH 10 (+180 +/- 50 mV)	-190.83
pH 4 (+180 +/- 50 mV)	
Calculated pH slope (<155 is suspect) (4/7 will result in negative slope)	173.07

Post-Deployment

RP DO chrg (range 25-75)	
RP DO warm up test (hi/lo)	
pH 7 (0 +/- 50 mV)	-19.38
pH 10 (+180 +/- 50 mV)	-197.79
pH 4 (+180 +/- 50 mV)	
Calculated pH Slope (<155 is suspect)	0.0

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hh:mm:ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %

Parameters recorded

Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc.:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: Offset 0.061
t = 22.22 + 0.06 = 22.28

Comments-Post: Sonde/probes found w/ bryozoans/colonial tunicates algae - probe faces clean

NERRS SWMP Water Quality Field Log

Reserve: Great Bay | Station Name: SFDP | File Name:

Deployment Information

Date Deployed: 7/3/17 (mm dd yyyy) | Time: 10:54 (hh mm (24hr)) | White Towel: yes

Technician(s): ZR | Sonde ID #: 911

Field Data:

Water Temp	21.1	°C	DO Percent	108.1	%
Sp Cond	1.218	mS cm	DO Conc.	9.73	mg/L
Salinity	0.1a	ppt	Other		

Comments: deploy 911 - recover 178, overlap @ 10:45 - grab triplicate sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: 7/5/17 | Duration: hr | Maintenance: re-calibration

Comments: pulled from 12:30 - 2:00 for re-calibration
took val sample on 7/12/17 at 10:12, no handheld

Retrieval Information

Date Retrieved: 8/9/17 (mm dd yyyy) | Time: 2:30 (hh mm (24hr)) | White Towel: yes

Technician(s): ZK, TG, DS | Sonde ID #: 911

Field Data:

Water Temp		°C	DO Percent		%
Sp Cond		mS cm	DO Conc.		mg/L
Salinity		ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard	A/H, T/H, H/A	External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: due to recover 911, repositioned anchor to shallower site, no sample or handheld

File Retrieval

Sonde Filename: | Print Graph: | Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Little Bay
SFDP08101[illegible]
started 8/9

Reserve: | Station Name: SFDP | CDMO Raw File Name:

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	911		pH:	16J101363	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	16J100252	
			Turbidity:	16J100302	
			Conductivity:	16H10319[illegible]	
			Chlorophyll:	16M[illegible]10529	
			EXO Wiper:	16J100191	

Datasonde Maintenance

Date of Calibration: 8/9/17 mm/dd/yyyy | Technician(s):

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: fDOM 16L103566

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error			**Pre-Deployment**	
Temp °C	°C			Check Date 9/4			
RP % DO @ 100% sat	%	%			%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	100.7	100.0		99.8	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.05
BP @ Cal (Optical)	764.7 mm Hg			756.9 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	764.1 mm Hg	(760.0 for vented sonde)		756.9 mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.476
Depth 0.0 offset	0.07	0.06		0.046	0.0 offset	pH 7 (0 +/- 50 mV)	-19.38
Station Offset	0.061			+0.041		pH 10 (+180 +/- 50 mV)	-197.19
Level 0.0 offset					0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond mS/cm	49.95 mS/cm	50 mS/cm		50.07 mS/cm		Calculated pH slope (<155 is suspect) (4/7 will result in negative slope)	178.4%
ph 7	7.03	7		7.10			
ph 10	10.12	10		10.08			
ph 4							
Turb NTU/FNU	0.03 NTU/FNU	0 NTU/FNU		0.16 NTU/FNU		**Post-Deployment**	
Turb NTU/FNU	124.7 NTU/FNU	123.98 NTU/FNU		124 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	°C			22.48		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	ug/L	ug/L		0 ug/L		pH 7 (0 +/- 50 mV)	-26.20
Chl (118) 165.8 ug/L	ug/L	ug/L		64.89	165.8	pH 10 (+180 +/- 50 mV)	-208.13
						pH 4 (+180 +/- 50 mV)	
Battery voltage	4.7 V	(remove ext. power ~650,6038)		4.4	(remove ext. power)	Calculated pH Slope (<155 is suspect)	175.93

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hr mm ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %

Parameters recorded:

Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc.:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: ne/bga/fDOM cal'd

Comments-Post:

Very H. mud. Faces clean

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: SFDP File Name:

Deployment Information

Date Deployed: 8/10/17 mm dd yyyy Time: 10:01 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 911

Field Data:

Water Temp	20.8	°C	DO Percent	96.6	%
Sp Cond	41.54	mS cm	DO Conc	7.49	mg/L
Salinity	26.7	ppt	Other		

Comments Deploy 911 at new location 43.1256, -70.8661 with longer line, on shallower sloped bottom. Grab sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 9/4/17 mm dd yyyy Time: 12:30 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 911

Field Data:

Water Temp	16.16	°C	DO Percent	100.9	%
Sp Cond	42.74	mS cm	DO Conc.	8.33	mg/L
Salinity	27.6	ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A,H, B L)

Sonde Guard	A/C	External Screen	
Temp Cond		Dissolved Oxygen	
pH		Turbidity	

Comments Recover 911, last reading at 12:30, grab sample

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: | CDMO Raw File Name: Little Bay SFDP0904117

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	177		pH:	16J101363	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	13M102175	Cay10R170
	16M102177		Turbidity:	13M102200	
			Conductivity:	16M10-2844	
			Chlorophyll:	16M101056	
			EXO Wiper:	13C107115	

Datasonde Maintenance

Date of Calibration: 9/14/17 mm/dd/yyyy | Technician(s):

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced			
Format Flash Disk:				Membrane integrity test:			

Comments: fDOM 17F10108 Sonde just back from YSI. All probes new to sonde

Pre/Post Deployment Calibration

Pre-Deployment	Standards	Before Cal	Calibrated	Error	Post-Deployment		Sensor Diagnostics	
					10/2/17		**Pre-Deployment**	
Temp	19.06	19.1 °C			Check Date			
RP % DO @ 100% sat		%	%		%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)		mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	99.7 %	99.7			101.4 %	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	0.94
BP @ Cal (Optical)	757.4 mm Hg				773.6 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	757.8 mm Hg	(760.0 for vented sonde)			773.6 mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.47
Depth 0.0 offset	0.25 m	-0.03 m			0.183	0.0 offset	pH 7 (0 +/- 50 mV)	-25.9
Station Offset	-0.027				0.184		pH 10 (-180 +/- 50 mV)	-202.0
Level 0.0 offset						0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond mS/cm	49.89 mS/cm	50 mS/cm			49.88 mS/cm		Calculated pH slope (<155 is suspect) (4/7 will result in negative slope)	176.15
ph 7	7.11	7			6.94			
ph 10	10.09	10			9.91			
ph 4								
Turb NTU/FNU	0.11 NTU/FNU	0 NTU/FNU			0.13 NTU/FNU		**Post-Deployment**	
Turb NTU/FNU	125.3 NTU/FNU	124 NTU/FNU			125.3 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	°C				°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	ug/L	ug/L			0.05 ug/L		pH 7 (0 +/- 50 mV)	-22.8
Chl (118) 165.8 ug/L	ug/L	ug/L			ug/L	165.8	pH 10 (-180 +/- 50 mV)	-196.8
							pH 4 (+180 +/- 50 mV)	
Battery voltage	5.9 V	(remove ext. power ~650,6038)			5.0 V	(remove ext. power)	Calculated pH Slope (<155 is suspect)	174.0

Programming

Interval	mn	Start date:	mm/dd/yyyy	Start time (STD):	24 hh:mm ss
Duration:	days	sonde file name:		Battery life:	days
Free memory	days	Set clock (status):	Y or N	Free memory (status)	bytes (k) or %
Parameters recorded:					
Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc.:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
	DO gain low	pH gain low		Battery Voltage:	

Comments-Pre: Lab reb station broken - used local source fDOM ICAL/ BGA-PC cal'd

Comments-Post:

99.7

BGA-PC 0.02

pH a little low

NERRS SWMP Water Quality Field Log

Reserve: Great Bay **Station Name:** SFDP **File Name:**

Deployment Information

Date Deployed: 9/4/17 mm dd yyyy **Time:** 13:53 hh mm (24hr) **White Towel:** yes

Technician(s): ZK **Sonde ID #:** 177

Field Data:

Water Temp		°C	DO Percent	%
Sp Cond		mS cm	DO Conc.	mg/L
Salinity		ppt	Other	

Comments deploy 177 after 1h 23m gap from 1230-1353

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: **Duration:** **Maintenance:**

Comments

Retrieval Information

Date Retrieved: 10/2/17 mm dd yyyy **Time:** 15:15 hh mm (24hr) **White Towel:** yes

Technician(s): ZK **Sonde ID #:** 177

Field Data:

Water Temp	18.3	°C	DO Percent	105.3 %
Sp Cond	42.63	mS cm	DO Conc.	8.54 mg/L
Salinity	27.5	ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light *(e.g. A H, B L)*

Sonde/Guard	A/L	External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments recover 177, deploy 910 grab sample, overlap at 1515

File Retrieval

Sonde Filename: **Print Graph:** **Probe Malfunction:**

Comments

NERRS SWMP Water Quality Calibration Log

Little Bay

Reserve: | Station Name: | CDMO Raw File Name: SFD0100217

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	910	16J100410	pH:	16J101364	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	16J100251	
			Turbidity:	16J100393	
			Conductivity:	16J100641	
			Chlorophyll:	16M100743	
			EXO Wiper:	16J100192	

21.64
21.75

Datasonde Maintenance

Date of Calibration: 10/2/17 mm/dd/yyyy | Technician(s):

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: fDOM 16M100181

Pre/Post Deployment Calibration

Pre-Deployment					Post-Deployment			Sensor Diagnostics	
	Standards	Before Cal	Calibrated	Error				Pre-Deployment	
Temp	19.75 °C	19.88 °C			Check Date				
RP % DO @ 100% sat	/ %	%	%		%	%		RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	/ mm Hg							RP DO gain (0.7-1.4)	/
Optical %DO @ 100% sat	101.6 %	101.7 %			98.1 %	%		Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.67
BP @ Cal (Optical)	712.3 mm Hg				745.2 mm Hg	98.1		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	712.3 mm Hg	(760.0 for vented sonde)			745.2 mm Hg	760.0 for vented)		Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.47
Depth 0.0 offset	0.36 m	0.17 m			0.201 0.0 offset	-0.202		pH 7 (0 +/- 50 mV)	-27.91
Station Offset	0.1667							pH 10 (-180 +/- 50 mV)	-197.76
Level 0.0 offset					0.0 offset			pH 4 (+180 +/- 50 mV)	
SpCond mS/cm	49.78 mS/cm	50 mS/cm			49.61 mS/cm			Calculated pH slope (<155 is suspect)	175.86
ph 7	6.97	7			6.97			(4/7 will result in negative slope)	
ph 10	9.98	10			9.75				
ph 4								Post-Deployment	
Turb NTU/FNU	0.0 NTU/FNU	0 NTU/FNU			0.3 NTU/FNU			RP DO chrg (range 25-75)	
Turb NTU/FNU	124.8 NTU/FNU	124 NTU/FNU			153.68 NTU/FNU			RP DO warm up test (hi/lo)	
Rhodamine WT Temp	°C				°C			pH 7 (0 +/- 50 mV)	-16.3
Chl (0) 0.0 ug/L	/ ug/L	ug/L	ug/L		0.10 ug/L			pH 10 (-180 +/- 50 mV)	-184.5
Chl (118) 165.8 ug/L	ug/L	ug/L	ug/L		ug/L	165.8		pH 4 (+180 +/- 50 mV)	
								Calculated pH Slope (<155 is suspect)	168.2
Battery voltage	4.9 V	(remove ext. power ~650,6638)			4.7 V	(remove ext. power)			

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hh mm ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %

Parameters recorded:

Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: Temp off Chl BGA-PC fDOM cal'd Depth high Had to use 1/2 rinse Standard for pH 10 - ran out Put in used batteries

Comments-Post: SpC a little low (pH also)

fDOM 1.03
BGA - -0.10
, Very lt mud - Faces clean

NERRS SWMP Water Quality Field Log

Reserve: Great Bay **Station Name:** SFDP **File Name:**

Deployment Information

Date Deployed: 10/2/17 mm dd yyyy **Time:** 15:15 hh mm (24hr) **White Towel:** yes

Technician(s): ZR **Sonde ID #:** 910

Field Data:

Water Temp	18.5	°C	DO Percent	105.3 %
Sp Cond	42.63	mS cm	DO Conc.	8.54 mg/L
Salinity	27.5	ppt	Other	

Comments recover 177, deploy 910 grab sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: **Duration:** **Maintenance:**

Comments

Retrieval Information

Date Retrieved: 10/30/17 mm dd yyyy **Time:** 12:35 hh mm (24hr) **White Towel:** yes

Technician(s): ZR, LM **Sonde ID #:** 910

Field Data:

Water Temp	13.9	°C	DO Percent	91.5 %
Sp Cond	24.8	mS cm	DO Conc.	7.90 mg/L
Salinity	38.83	ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light *(e.g. A H, B L)*

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments recover 910, deploy 675, overlap at 1245, grab sample clean-light mud

File Retrieval

Sonde Filename: **Print Graph:** **Probe Malfunction:**

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: | CDMO Raw File Name: Little Bay EFDP103017

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	675	14A	pH:	16M103216	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	17E102902	
			Turbidity:	17E103581	
			Conductivity:	17E104490	
			Chlorophyll:	16M100739	
			EXO Wiper:	17E101859	

Datasonde Maintenance

Date of Calibration: 10/23 + 10/30 mm/dd/yyyy | Technician(s): LM

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: fDom 16M100186

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error			Pre-Deployment	
Temp 23.1 °C	23.19			Check Date 12/11/17			
RP % DO @ 100% sat	%	%		%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	97.5	97.3		102.5	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.04
BP @ Cal (Optical)	739 mm Hg			761.1 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	739.1 mm Hg	(760.0 for vented sonde)		761.1 mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.497
Depth 0.0 offset	-0.62	+0.28		0.008	0.0 offset	pH 7 (0 +/- 50 mV)	
Station Offset	+0.285				0.014	pH 10 (+180 +/- 50 mV)	-29.45
Level 0.0 offset					0.0 offset	pH 4 (+180 +/- 50 mV)	-200.26
SpCond mS/cm	50.06 mS/cm	50 mS/cm		50 mS/cm		Calculated pH slope	170.81
ph 7	7.04	7		7.06		(<155 is suspect)	
ph 10	9.98	10		10.04		(4/7 will result in negative slope)	
ph 4							
Turb NTU/FNU	0.46 NTU/FNU	0 NTU/FNU		0.6 NTU/FNU		Post-Deployment	
Turb NTU/FNU	124.25 NTU/FNU	124 NTU/FNU		124.68 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	°C			°C		RP DO warm up test (hi/lo)	
Chl (6) 0.0 ug/L	ug/L	ug/L		ug/L		pH 7 (0 +/- 50 mV)	-35.7
Chl (118) 165.8 ug/L	ug/L	ug/L		ug/L	165.8	pH 10 (+180 +/- 50 mV)	-207.3
						pH 4 (+180 +/- 50 mV)	
Battery voltage	4.9 V	(remove ext. power ~650,6038)		4.0 V	(remove ext. power)	Calculated pH Slope (<155 is suspect)	178.16

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hr mm:ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %

Parameters recorded:

Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc.:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: CL/BGA-PC/fDom calib

Comments-Post: CL = 0
BGA = 0.0
fDom = -0.04

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: SFDP File Name:

Deployment Information

Date Deployed: 10/30/17 mm dd yyyy Time: 12:35 hh mm (24hr) White Towel: yes

Technician(s): Sonde ID #: 675

Field Data:

Water Temp	13.9	°C	DO Percent	91.5	%
Sp Cond	24.8	mS cm	DO Conc.	7.90	mg/l
Salinity	38.83	ppt	Other		

Comments recover 910, deploy 675, overlap at 1245, grab sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 12/11/17 mm dd yyyy Time: 10:47 hh mm (24hr) White Towel: yes

Technician(s): JK Sonde ID #: 675

Field Data:

Water Temp	5.20	°C	DO Percent	93.1	%
Sp Cond	42.76	mS cm	DO Conc.	9.88	mg/l
Salinity	27.0	ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments relover 675. overlap w/ 3174 at 10:45 instead of handheld. No sample.

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: LPR | CDMO Raw File Name: LPR071117

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	183		pH:	14E100909	
Vented:		Model Number	RP DO:		
Nickname:			ODO	16M101432	
			Turbidity	16M101849	
			Conductivity:	16J100640	
			pc Chlorophyll:	16M100741	
			EXO Wiper:	13M10101	

fDOm 16L103565

Datasonde Maintenance

Date of Calibration: 7/5/17 mm/dd/yyyy | Technician(s):

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments:

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	**Before Cal**	**Calibrated**	**Error**			**Pre-Deployment**	
Temp 22.02	22.10			Check Date			
RP % DO @ 100% sat	%	%		%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	101 %	100.9 %		98.3 %	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.05
BP @ Cal (Optical)	766.9 mm Hg			763.1 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	766.9 mm Hg	(760.0 for vented sonde)		763.1 mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95 WPD EXO: 0.419-0.519)	0.47
Depth 0.0 offset	0.23 m	0.10 m		0.054	0.0 offset	pH 7 (0 +/- 50 mV)	
Station Offset				0.048		pH 10 (+180 +/- 50 mV)	
Level 0.0 offset					0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond 50 mS/cm	52.02 mS/cm	50 mS/cm		49.8 mS/cm		Calculated pH slope	0.0
ph 7						(<155 is suspect)	
ph 10						(4/7 will result in negative slope)	
ph 4							
Turb 0 NTU/FNU	0.07 NTU/FNU	0 NTU/FNU		+0.25 NTU/FNU		**Post-Deployment**	
Turb 124 NTU/FNU	122.68 NTU/FNU	124 NTU/FNU		123.70 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	°C			°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	ug/L	ug/L		ug/L		pH 7 (0 +/- 50 mV)	
Chl (118) 165.8 ug/L	ug/L	ug/L		ug/L	165.8	pH 10 (+180 +/- 50 mV)	
						pH 4 (+180 +/- 50 mV)	
Battery voltage	5.2 V	(remove ext. power >650,6038)		4.8 V	(remove ext. power)	Calculated pH Slope (<155 is suspect)	0.0

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hh mm ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %
Parameters recorded:					
Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc.:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: offset = 0.095 cal/flow/bga cal'd Bulkhead & inside ports very oxidized corroded

Comments-Post: DO a little low

Light fouling. Probe faces clean

NERRS SWMP Water Quality Field Log

Reserve: Great Bay **Station Name:** GPK **File Name:**

Deployment Information

Date Deployed: 7/11/17 mm/dd/yyyy **Time:** 9:00 hh:mm (24hr) **White Towel:**

Technician(s): ZK, TG **Sonde ID #:** 183

Field Data:

Water Temp		°C	DO Percent		%
Sp Cond		mS/cm	DO Conc.		mg/L
Salinity		ppt	Other		

Comments ~~deploy for season. Off bottom, no telemetry~~ GPR, deploy for season
43.10475 −70.79517 no handheld, grab sample for cal

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: 7/11/17 **Duration:** **Maintenance:**

Comments

Retrieval Information

Date Retrieved: 8/11/17 mm/dd/yyyy **Time:** 11:01 hh:mm (24hr) **White Towel:**

Technician(s): ZK **Sonde ID #:** 183

Field Data:

Water Temp	18.1	°C	DO Percent	99.6	%
Sp Cond	42.26	mS/cm	DO Conc.	8.11	mg/L
Salinity	27.2	ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light *(e.g. A/H, B/L)*

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments recover 183, deploy 674, grab sample

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: | CDMO Raw File Name: GR081117

Datasonde and Probe Identification Numbers

	Sonde Code / Serial Number		Serial Number	Model Number
Datasonde:	674	pH:	16M102424	
Vented:		RP DO:		
Nickname:		ODO:	16M10143	
	14A10674	Turbidity:	16M10148	
		Conductivity:	16M10644	
		Chlorophyll:	—	
		EXO Wiper:	16M10130	

Datasonde Maintenance

Date of Calibration: 8/9/17 (mm/dd/yyyy) | Technician(s):

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: Sonde just back from YSI - new main board
fDOM 16M100185

Pre/Post Deployment Calibration

Pre-Deployment	Standards	Before Cal	Calibrated	Error	Post-Deployment		Sensor Diagnostics	
					9/1		**Pre-Deployment**	
Temp	32.3 °C	22.4 °C			Check Date			
RP % DO @ 100% sat		%	%		%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)		mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	100.4	%	101 %		101.2	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.05
BP @ Cal (Optical)	767.4	mm Hg			764.5	mm Hg	RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	767.4	mm Hg	(760.0 for vented sonde)		764.5	mm Hg (760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.415-0.515)	0.47
Depth	0.0 offset	0.56 m	0.10 m		0.062 m	0.0 offset	pH 7 (0 +/- 50 mV)	-20.19
Station Offset		0.102				0.061	pH 10 (-180 +/- 50 mV)	-198.44
Level	0.0 offset					0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond	mS/cm	50.12 mS/cm	50 mS/cm		49.75 mS/cm		Calculated pH slope	0.0
ph 7		6.98	7		6.73		(<155 is suspect)	
ph 10		10.06	10		6.70		(4/7 will result in negative slope)	
ph 4								
Turb	NTU/FNU	0.0 NTU/FNU	0 NTU/FNU		-0.03 NTU/FNU		**Post-Deployment**	
Turb	NTU/FNU	125.6 NTU/FNU	123.9 NTU/FNU		122.3 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp		°C			°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L		ug/L	ug/L		ug/L		pH 7 (0 +/- 50 mV)	-4.1
Chl (118) 165.8 ug/L		ug/L	ug/L		ug/L	165.8	pH 10 (-180 +/- 50 mV)	-2.4
							pH 4 (+180 +/- 50 mV)	
Battery voltage	6.0 V	(remove ext. power ~650,603B)			5.3 V	(remove ext. power)	Calculated pH Slope (<155 is suspect)	0.0

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hr military
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status)	bytes (b) or %
Parameters recorded:					
Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc.:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: fDOM cal'd / no cal probe

Comments-Post: DO 0.8% high * pH "died" 8/31 20:15 This kind of low

Very lt. mud. Brush splayed. Faces clean

NERRS SWMP Water Quality Field Log

Reserve: Great Bay **Station Name:** LPR **File Name:**

Deployment Information

Date Deployed: 8/11/17 mm dd yyyy **Time:** 11:01 hh mm (24hr) **White Towel:** yes

Technician(s): ZK **Sonde ID #:** 674

Field Data:

Water Temp	18.1	°C	DO Percent	99.6	%
Sp Cond	42.26	mS cm	DO Conc.	8.11	mg/L
Salinity	27.2	ppt	Other		

Comments recover 183, deploy 674, grab sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: **Duration:** **Maintenance:**

Comments

Retrieval Information

Date Retrieved: 9/11/17 mm dd yyyy **Time:** 12:30 hh mm (24hr) **White Towel:** yes

Technician(s): ZK **Sonde ID #:** 674

Field Data:

Water Temp		°C	DO Percent		%
Sp Cond		mS cm	DO Conc.		mg/L
Salinity		ppt	Other		

no data

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light *(e.g. A H, B L)*

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments recover 674, deploy 173, overlap at 12:30
no data due to malfunctioning YSI

File Retrieval

Sonde Filename: **Print Graph:** **Probe Malfunction:**

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: | CDMO Raw File Name: LPR091117

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	173		pH:	14A100788	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	16M101437	
			Turbidity:	16M101830	
			Conductivity:	16M100102	
			Chlorophyll:		
			EXO Wiper:	16M101300	

Tip 16F

Datasonde Maintenance

Date of Calibration: 9/4/17 mm/dd/yyyy | Technician(s):

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: fDOM 16M100184

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error	10/10		Pre-Deployment	
Temp 20.3°C	20.4°C			Check Date			
RP % DO @ 100% sat	%	%		%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	102.6	101 %		99.9 %	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.00
BP @ Cal (Optical)	767.3 mm Hg			761.4 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	767.8 mm Hg	(760.0 for vented sonde)		mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.47
Depth 0.0 offset	9.78 m	10.11 in		0.013 m	0.0 offset	pH 7 (0 +/- 50 mV)	-23.36
Station Offset	0.104			≈0.020		pH 10 (-180 +/- 50 mV)	-202.64
Level 0.0 offset				49.97	0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond mS/cm	50.18 mS/cm	50 mS/cm		mS/cm		Calculated pH slope (<155 is suspect) (4/7 will result in negative slope)	177.29
ph 7	7.01	7		7.01			
ph 10	10.04	10		9.96			
ph 4							
Turb NTU/FNU	0.23 NTU/FNU	0 NTU/FNU		0.03 NTU/FNU		Post-Deployment	
Turb NTU/FNU	125.59 NTU/FNU	124 NTU/FNU		123.80 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	°C			°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	ug/L	ug/L		ug/L		pH 7 (0 +/- 50 mV)	-26.1
Chl (118) 165.8 ug/L	ug/L	ug/L		ug/L	165.8	pH 10 (-180 +/- 50 mV)	-200.78
						pH 4 (+180 +/- 50 mV)	
Battery voltage	6.3 V	(remove ext. power ~6.50/6.03V)		6.0 V	(remove ext. power)	Calculated pH Slope (<155 is suspect)	174.08

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hh:mm:ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status)	bytes (k) or %

Parameters recorded:

Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc.:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: NO CHL/BGA probe
fDOM cal'd 9/5

Comments-Post:

fDOM 0.55 @ 0

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: LPR File Name:

Deployment Information

Date Deployed: 9/11/17 mm dd yyyy Time: 1230 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 173

Field Data:

Water Temp	°C	no data	DO Percent	%
Sp Cond	mS cm		DO Conc.	mg/L
Salinity	ppt		Other	

Comments recover 674, deploy 173, overlap at 1230
no data due to malfunctioning YSI

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 10/10/17 mm dd yyyy Time: 12:26 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 173

Field Data:

Water Temp	15.0 °C		DO Percent	77.4 %
Sp Cond	43.76 mS cm		DO Conc.	6.58 mg/L
Salinity	28.3 ppt		Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	A/L
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments recover 173, deploy 674, overlap + handheld at 1230, grab sample

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: | CDMO Raw File Name: LPR101017

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	674		pH:	16M103220	
Vented:		Model Number	RP DO:		
Nickname:	U4A		ODO:	16M101434	
			Turbidity:	16M101482	
			Conductivity:	16T100644	
			Chlorophyll:	16M100740	
			EXO Wiper:	16M101305	

Datasonde Maintenance

Date of Calibration: 10/10/17 mm/dd/yyyy | Technician(s): LM

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: fDOM 16M100185

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error	11/13/17		Pre-Deployment	
Temp 22.39 °C	22.32			Check Date		RP DO chrg (range 25-75)	
RP % DO @ 100% sat %	%	%		%	%	RP DO gain (0.7-1.4)	
BP @ cal (Rapid Pulse)	mm Hg					Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.05
Optical %DO @ 100% sat	99.8 100.2			101.6	%	RP DO warm up test (hi/lo)	
BP @ Cal (Optical)	761.5 mm Hg			776.9 gm Hg	101.4	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPB EXO: 0.419-0.519)	0.47
Baro. Pres. (Depth Calib)	mm Hg	(760.0 for vented sonde)		770 gm Hg	(760.0 for vented)	pH 7 (0 +/- 50 mV)	-31.85
Depth 0.0 offset	-0.01 m	0.20		0.147	0.0 offset	pH 10 (+180 +/- 50 mV)	-205.33
Station Offset				0.149		pH 4 (+180 +/- 50 mV)	
Level 0.0 offset					0.0 offset	Calculated pH slope (<155 is suspect) (4/7 will result in negative slope)	173.48
SpCond 50 mS/cm	50.12 mS/cm	50 mS/cm		49.75 mS/cm			
ph 7	7.09	7		7.06			
ph 10	10.02	10		10.08			
ph 4						Post-Deployment	
Turb 0 NTU/FNU	0.19 NTU/FNU	0.01 NTU/FNU		-0.26 NTU/FNU		RP DO chrg (range 25-75)	
Turb 104 NTU/FNU	123.79 NTU/FNU	124 NTU/FNU		122.28 NTU/FNU		RP DO warm up test (hi/lo)	
Rhodamine WT Temp	°C			°C		pH 7 (0 +/- 50 mV)	-35.0
Chl (0) 0.0 ug/L	ug/L	ug/L		-0.05		pH 10 (+180 +/- 50 mV)	-209.4
Chl (118) 165.8 ug/L	ug/L	ug/L		ug/L	165.8	pH 4 (+180 +/- 50 mV)	
Battery voltage 4.8 V	(remove ext. power ~650,6038)			Dead	(remove ext. power)	Calculated pH Slope (<155 is suspect)	174.4

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hr: mm:ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %

Parameters recorded:

Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc.:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: Chl/BGA cal'd
fDOM not (cal'd 9/12/17)

Comments-Post: BGA = -0.02 Sonde Died 11/2 1800 (Bc. used old batteries?)
fDOM = -0.04 Temp OK

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: LPK File Name:

Deployment Information

Date Deployed: 10/10/17 mm dd yyyy Time: 12:26 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 1074

Field Data:

Water Temp	15.0	°C	DO Percent	77.4 %
Sp Cond	43.76	mS/cm	DO Conc.	6.58 mg/L
Salinity	28.3	ppt	Other	

Comments recover 173, deploy 674, overlap + handheld at 1230, grab sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 11/7/17 mm dd yyyy Time: 9:08 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 674

Field Data:

Water Temp	11.0	°C	DO Percent	91.3 %
Sp Cond	34.33	mS/cm	DO Conc.	8.86 mg/L
Salinity	21.5	ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light *(e.g. A H, B L)*

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments recover 674, deploy 173, both overlap at 9:15 w/ handheld, grab sample. very little biofouling on sonde

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

page log
ph status
d&T S&H

NERRS SWMP Water Quality Calibration Log

Reserve: | Site Name: LPR | File Name: LPR1107.17

Datasonde Maintenance

Date of Calibration: 11/6/17 mm/dd/yyyy | Technician(s): LM TG

	TURB	ODO		TURB	ODO
Wipers replaced			Wipers park 180° from optics		
Batteries replaced			DO membrane replaced		
Format flash disk			Membrane integrity test		

Datasonde and Probe Identification Numbers

Datasonde	EXO 17.3 16M102173	DO/ODO	16M101437
pH	—	Conductivity	16M100102
Turbidity	16M101850		

Comments: Wipers 16M101300 fDOM 16M100184

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Pre-Deployment: Standards	Before Cal	Calibrated	Error	Post-Deployment 12/11/17		Sensor Diagnostics: Pre-Deployment	
%DO @ 100% sat	/ %	/ %		/ %	/ %	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	/ mm Hg			/ mm Hg		RP DO gain (0.8-1.7)	
Optical %DO @ 100% sat	100.0 %	99.6 %		100.4 %	%	Optical DO gain	1.06
cal (Optical)	751 mm Hg			760.8 mm Hg		DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	751 mm Hg	(760 0 for vented sonde)		761.8 mm Hg	(760 0 for vented)	Cell const (4.6-5.45)	0.477
Depth 0.038	offset -2.10	-0.04 m		0.012	-10.332 offset	pH 7 (0 +/- 50 mV)	
				0.014		pH 10 (-180 +/- 50 mV)	
SpCond 50 mS/cm	49.97 mS/cm	50 mS/cm		49.9 mS/cm		pH 4 (+180 +/- 50 mV)	
						Calculated pH slope	174.3
pH 7						**Post-Deployment**	
pH 10						DO chrg (range 25-75)	
pH 4						DO warm up test (hi/lo)	
Turb 0 NTU	-0.03 NTU	0 NTU		0.3 NTU		pH 7 (0 +/- 50 mV)	
Turb 124 NTU	117.3 NTU	124.01		120.68		pH 10 (-180 +/- 50 mV)	
						pH 4 (+180 +/- 50 mV)	
Battery voltage	6.2 (remove ext. power ~650, 6038)			5.0 V (remove ext. power)		Calculated pH slope	0.0

Programming

Interval	min	Start date	mm/dd/yyyy	Start time (std time)	hh mm ss
Duration	days	Data file name		Battery life	days
Free memory	days	Set clock (status)	Y or N	Free bytes (status)	K
		End date		End time	

Parameters recorded: Date, Time, Temp°C, SpCon, Sal, DO%, DO mg/L, Depth, pH, Turb, Batt

Comments - Pre: No pH probe or chl/bga probe T= 21.73
fDOM not cal'd (cal'd 9/5) T_s = 21.80

Comments - Post: Sonde clean fDOM = 0.41
Turb a little low

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: LPR File Name:

Deployment Information

Date Deployed: 11/7/17 mm dd yyyy Time: 9:08 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 173

Field Data:

Water Temp	11.0	°C	DO Percent	91.3	%
Sp Cond	34.33	mS/cm	DO Conc.	8.86	mg/l
Salinity	21.5	ppt	Other		

Comments recover 174, deploy 173, both overlap at 9:15 w/ handheld. grab sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 12/11/17 mm dd yyyy Time: 11:17 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 173

Field Data:

Water Temp	5.93	°C	DO Percent	88.7	%
Sp Cond	45.12	mS/cm	DO Conc.	9.14	mg/l
Salinity	28.72	ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments recover 173 for season, overlap w/ 3174 at 11:15 instead of handheld. No sample

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

iage log
ih status
I&T S&H
Reserve:

NERRS SWMP Water Quality Calibration Log

NHSY
UP051817

Site Name: SY

File Name:

Datasonde Maintenance

Date of Calibration: 5/18/17 mm/dd/yyyy

Technician(s): TG

	TURB	ODO
Wipers replaced		
Batteries replaced		
Format flash disk		

	TURB	ODO
Wipers park 180° from optics		
DO membrane replaced		
Membrane integrity test		

Datasonde and Probe Identification Numbers

Datasonde	16M102178	DO/ODO	16M101438
pH	16M103216	Conductivity	16M100099
Turbidity	16M101478	Wiper	16M101301

new!

Comments: all new fDOM 16M101490

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

	Pre-Deployment Standards	Pre-Deployment Before Cal	Pre-Deployment Calibrated	Pre-Deployment Error	Post-Deployment	
%DO @ 100% sat		1 %	1 %		1 %	1 %
BP @ cal (Rapid Pulse)		1 mm Hg			1 mm Hg	
Optical %DO @ 100% sat		93.7	99.6		100.7	%
cal (Optical)		750 mm Hg			761.7 mm Hg	
Baro. Pres. (Depth Calib)		750 mm Hg	(760.0 for vented sonde)		761.7 mm Hg	(760.0 for vented)
Depth	0.038 offset	10.28 m	0.03 m		0.027 m	-10.332 offset
SpCond	50 mS/cm	49.82 mS/cm	50 mS/cm		50.49 mS/cm	
pH 7	7	7.16	7		7.11	
pH 10	10	10.14	10		10.03	
pH 4						
Turb	0 NTU	0.4 NTU	0 NTU		0.01 NTU	
Turb	124 NTU	118.5 NTU	124 NTU		117.3 NTU	
Battery voltage		6.1 V (remove ext. power <8.0, 6038)			6.2 V (remove ext. power)	

Sensor Diagnostics	Pre-Deployment	Post-Deployment
RP DO chrg (range 25-75)		
RP DO gain (0.8-1.7)		
Optical DO gain	1.08	
DO warm up test (hi/lo)		
Cell const (4.6-5.45)	0.47	
pH 7 (0 +/- 50 mV)	-10	-16.3
pH 10 (-180 +/- 50 mV)	187	-188.72
pH 4 (+180 +/- 50 mV)		
Calculated pH slope	174.3	170.40

Programming

Interval	min	Start date	mm/dd/yyyy	Start time (std time)	hh mm ss
Duration	days	Data file name		Battery life	days
Free memory	days	Set clock (status)	Y or N	Free bytes (status)	K
		End date		End time	

Parameters recorded: Date, Time, Temp°C, SpCon, Sal, DO%, DO mg/L, Depth, pH, Turb, Batt

Comments - Pre: offset = -0.027, T = 21.33 T_s = 21.36

Comments - Post: Turb. kind of low offset 0.027 not calibrated
Chl 24° true 63.5 (sonde 64.2) Wiper bad issues
fDOM 25° true 296 QSU (sonde 305.2) during deployment

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: 5 7 File Name:

Deployment Information

Date Deployed: 5/18/17 (mm dd yyyy) Time: 1245 (hh mm (24hr)) White Towel: yes

Technician(s): TS Sonde ID #: 177

Field Data:

Water Temp	16.18	°C	DO Percent	109.2	%
Sp Cond	7.15	mS/cm	DO Conc.	10.58	mg/L
Salinity	4.2	ppt	Other		

>@1315

Comments New site, new actual 57, see GPS
~2m water depth (WSP to bow knee)

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: 5/18 Duration: 1315 Maintenance:

Comments grab WQ sample

Retrieval Information

Date Retrieved: (mm dd yyyy) Time: (hh mm (24hr)) White Towel: yes

Technician(s): Sonde ID #:

Field Data:

Water Temp		°C	DO Percent		%
Sp Cond		mS/cm	DO Conc.		mg/L
Salinity		ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A.H, B.L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Field Log

(UPR from now on)

Reserve: Great Bay Station Name: 57/UPR File Name:

Deployment Information

Date Deployed: 6/13/17 mm dd yyyy Time: 10:41 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 675

Field Data:

Water Temp	20.5	°C	DO Percent	90.1	%
Sp Cond	12.98	mS cm	DO Conc.	7.82	mg/L
Salinity	7.5	ppt	Other		

Comments recover 176 at "57sonde waypoint, 43.13872, -70.82955"
deploy 675 at new waypoint "GBRUPR", grab sample + data at old 57 waypoint

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 7/10/17 mm dd yyyy Time: 11:58 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 675

Field Data:

Water Temp	18.9	°C	DO Percent	110.7	%
Sp Cond	37.38	mS cm	DO Conc.	8.98	mg/L
Salinity	23.7	ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments recover 675, deploy 178, grab sample
heavy mud fouling in sonde tube, overlap at 12:00

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: GRBVPR | CDMO Raw File Name: VPR071017

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number	Model Number
Datasonde:	178		
Vented:			
Nickname:			

	Serial Number	Model Number
pH:	16M102423	
RP DO:		
ODO:	16M101435	
Turbidity:	16M101479	
Conductivity:	16M100101	
PC chlorophyll:	16M100742	
EXO Wiper:	16M101302	

Datasonde Maintenance

Date of Calibration: 7/5/17 mm/dd/yyyy | Technician(s):

	TURB	ODO	CHL
Wipers Replaced:			
Batteries Replaced:			
Format Flash Disk:			

	TURB	ODO	CHL
Wiper parks 180° from optics:			
DO/ODO membrane replaced:			
Membrane integrity test:			

ODO 16M100180

Comments:

Pre/Post Deployment Calibration

Pre-Deployment	Standards	Before Cal	Calibrated	Error
Temp	22.02	22.04		
RP % DO @ 100% sat				
BP @ cal (Rapid Pulse)				
Optical %DO @ 100% sat		102.9	100.9	
BP @ Cal (Optical)		766.6 mm Hg		
Baro. Pres. (Depth Calib)		766.6 mm Hg	(760.0 for vented sonde)	
Depth 0.0 offset		0.15	0.09 m	
Station Offset				
Level 0.0 offset				
SpCond	50 mS/cm	50.06 mS/cm	50 mS/cm	
ph 7	7	7.18	7	
ph 10	10	10.08	10	
ph 4	4			
Turb	0 NTU/FNU	0.27 NTU/FNU	0.02 NTU/FNU	
Turb	124 NTU/FNU	124.75 NTU/FNU	123.97 NTU/FNU	
Rhodamine WT Temp		°C		
Chl (0) 0.0 ug/L		ug/L	ug/L	
Chl (118) 165.8 ug/L		ug/L	ug/L	
Battery voltage		5.4 V	(remove ext. power ~6.5V, 6V)	

Post-Deployment		
Check Date	8/14/17	
	%	%
	99.5	%
	761.1 mm Hg	
	761.1 mm Hg	(760.0 for vented)
	0.00 m	0.0 offset 0.014
		0.0 offset
	49.59 mS/cm	
	7.12	
	10.13	
	0.13 NTU/FNU	
	123.85 NTU/FNU	
	24 °C	
	0.0 ug/L	
	64.15 ug/L	165.8
	4.8 V	(remove ext. power)

Sensor Diagnostics	
Pre-Deployment	
RP DO chrg (range 25-75)	
RP DO gain (0.7-1.4)	
Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.09
RP DO warm up test (hi/lo)	
Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.46
pH 7 (0 +/- 50 mV)	-18.2
pH 10 (+180 +/- 50 mV)	-194
pH 4 (+180 +/- 50 mV)	
Calculated pH slope (<155 is suspect) (4/7 will result in negative slope)	0.0 175.87
Post-Deployment	
RP DO chrg (range 25-75)	
RP DO warm up test (hi/lo)	
pH 7 (0 +/- 50 mV)	-25.1
pH 10 (+180 +/- 50 mV)	-202.3
pH 4 (+180 +/- 50 mV)	
Calculated pH Slope (<155 is suspect)	0.0

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hh:mm:ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %
Parameters recorded					
Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc.:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: Offset 0.089 chl/fdom/bga cal'd →

Comments-Post:

23.82

med algae, colonial tunicates on poles

NERRS SWMP Water Quality Field Log

Reserve: Great Bay **Station Name:** UPR **File Name:**

Deployment Information

Date Deployed: 7/10/17 mm/dd/yyyy **Time:** 11:58 hh:mm (24hr) **White Towel:**

Technician(s): ZK **Sonde ID #:** 178

Field Data:

Water Temp	18.9	°C	DO Percent	110.7	%
Sp Cond	37.38	mS/cm	DO Conc.	8.98	mg/L
Salinity	23.7	ppt	Other		

Comments ~~deploy for season. On bottom, no fouling.~~ recover 675, deploy 178, overlap at 12:00

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: **Duration:** **Maintenance:**

Comments

Retrieval Information

Date Retrieved: 8/14/17 mm/dd/yyyy **Time:** 3:52 hh:mm (24hr) **White Towel:**

Technician(s): ZK **Sonde ID #:** 178

Field Data:

Water Temp	23.0	°C	DO Percent	103.3	%
Sp Cond	45.0	mS/cm	DO Conc.	8.18	mg/L
Salinity	29.1	ppt	Other		

Fouling Presence: **Type:** A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light *(e.g. A/H, B/L)*

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments deploy 673, recover 178, grab sample, overlap at 4:00

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: UPR | CDMO Raw File Name: UPR081417

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	673		pH:	16M10329	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	~~13M10275~~	
			Turbidity:	13M10229	
			Conductivity:	16M10283	
			Chlorophyll:	16M10740	
			EXO Wiper:	14A10008	

13M10219

fDOM 16M100187

Datasonde Maintenance

Date of Calibration: 8/14/17 mm/dd/yyyy | Technician(s):

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments:

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error			**Pre-Deployment**	
Temp 21.87 °C	21.88 °C			Check Date 9/11			
RP % DO @ 100% sat	%	%		%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg					RP DO gain (1.7-1.4)	
Optical %DO @ 100% sat 99.3 %	100.2			101.3	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.01
BP @ Cal (Optical) 761.8 mm Hg				764.8 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib) 761.8 mm Hg	(760.0 for vented sonde)			764.8 mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.4(5-0.519)	4.47
Depth 0.0 offset 0.05 m	0.03 m			0.068 0.0 offset	0.065	pH 7 (0 +/- 50 mV)	-23.6
Station Offset 0.027						pH 10 (-180 +/- 50 mV)	-202.5
Level 0.0 offset				0.0 offset		pH 4 (+180 +/- 50 mV)	
SpCond mS/cm 50.17	µS/cm 50	mS/cm		49.5 mS/cm		Calculated pH slope (<155 is suspect) (4/7 will result in negative slope)	178.7
ph 7	7	7		7.09			
ph 10	10.02	10		10.03			
ph 4							
Turb NTU/FNU	0.02 NTU/FNU	0 NTU/FNU		0.69 NTU/FNU		**Post-Deployment**	
Turb NTU/FNU	124.0 NTU/FNU	123.9 NTU/FNU		124.7 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	°C			°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	ug/L	ug/L		0.01 ug/L		pH 7 (0 +/- 50 mV)	-28.9
Chl (118) 165.8 ug/L	ug/L	ug/L		ug/L	165.8	pH 10 (-180 +/- 50 mV)	-204.6
						pH 4 (+180 +/- 50 mV)	
Battery voltage 4.7 V	(remove ext. power ~650/6038)			4.4 V	(remove ext. power)	Calculated pH Slope (<155 is suspect)	175.7

Programming

Interval	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hh:mm:ss
Duration	days	sonde file name:		Battery life:	days
Free memory	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %
Parameters recorded					
Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: fDOM/Cal/DBA cal'd

Comments-Post: Wiper misparked over fDOM DO 0.7% high fDOM +0.14 Cond bad

Light bryo/mud Turbidity

* Wiper not working at end when

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: UPR File Name:

Deployment Information

Date Deployed: 8/14/17 mm dd yyyy Time: 3:52 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 673

Field Data:

Water Temp	23.0	°C	DO Percent	103.3	%
Sp Cond	45.0	mS cm	DO Conc.	8.18	mg/L
Salinity	29.1	ppt	Other		

Comments deploy 673. recover 178. grab sample overlap at 4:00

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 9/11/17 mm dd yyyy Time: 13:00 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 673

Field Data:

Water Temp		°C	DO Percent		%
Sp Cond		mS cm	DO Conc.		mg/L
Salinity		ppt	Other		

no data

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A, H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments recover 673. deploy 911. overlap at 1300
no data due to malfunctioning YSI

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: | CDMO Raw File Name: JPR091117

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	911		pH:	16M103218	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	16J100252	
			Turbidity:	16J100302	
			Conductivity:	16H103191	
			Chlorophyll:	16M101062	
			EXO Wiper:	16J100191	

Datasonde Maintenance

Date of Calibration: 9/4 mm/dd/yyyy | Technician(s):

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced			
Format Flash Disk:				Membrane integrity test:			

Comments: fDOM 16L103566

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error			**Pre-Deployment**	
Temp 20.47 °C	20.50 °C			Check Date 9/10			
RP % DO @ 100% sat	%	%		%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	100.8	101 %		100.3 %		Optical DO gain (5600: 0.7-1.4, EXO: 0.87-1.25)	1.05
BP @ Cal (Optical)	761.3 mm Hg			761.9 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	768.5 mm Hg	(760.0 for vented sonde)		11 mm Hg	(760.0 for vented)	Cell const (5600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.47
Depth 0.0 offset	0.16 m	0.12 m		0.018	0.0 offset	pH 7 (0 +/- 50 mV)	-20.30
Station Offset	0.115				0.027	pH 10 (-180 +/- 50 mV)	-197.30
Level 0.0 offset					0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond mS/cm	49.98 mS/cm	50 mS/cm		50.02 mS/cm		Calculated pH slope (<155 is suspect) (4/7 will result in negative slope)	177.0
ph 7	7.03	7		7.07			
ph 10	10.01	10		9.98			
ph 4							
Turb NTU/FNU	0.09 NTU/FNU	0 NTU/FNU		1.10 NTU/FNU		**Post-Deployment**	
Turb NTU/FNU	124.37 NTU/FNU	123.88 NTU/FNU		125.4 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	°C			°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	ug/L	ug/L		0.15 ug/L		pH 7 (0 +/- 50 mV)	-24.5
Chl (118) 165.8 ug/L	ug/L	ug/L		ug/L	165.8	pH 10 (-180 +/- 50 mV)	-197.5
						pH 4 (+180 +/- 50 mV)	
Battery voltage	6.2 V	(remove ext. power ~650,6038)		5.2 V	(remove ext. power)	Calculated pH Slope (<155 is suspect)	173.0

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hh mm:ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %

Parameters recorded:

Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: Did not cal BGA post values were right on. Post 22.49 → 22.5 → 15.8 Sonde 15.8 Chl/fDOM cal'd

Comments-Post:

fDOM -0.10
BGA 0.02

Very lt fouling. Faces clean

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: UPR File Name:

Deployment Information

Date Deployed: 9/11/17 mm dd yyyy Time: 13:00 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 911

Field Data:

Water Temp		°C	DO Percent	%
Sp Cond		mS cm	DO Conc.	mg/L
Salinity		ppt	Other	

no data

Comments recover 673, deploy 911, overlap at 1300
no data due to malfunctioning YSI

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 10/10/17 mm dd yyyy Time: 12:48 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 911

Field Data:

Water Temp	16.5	°C	DO Percent	80.5 %
Sp Cond	42.60	mS cm	DO Conc.	6.68 mg/L
Salinity	27.4	ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	BIM
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments recover 911, deploy 673, overlap and handheld at 1300. shackle badly rusted on anchor, br. no drill + new shackle next visit

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: | CDMO Raw File Name: UPR101017

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	673		pH:	16M103219	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	13M102178	Cap 17F
	14A		Turbidity:	13M102203	
			Conductivity:	16M102843	
			Chlorophyll:	16M100742	
			EXO Wiper:	17F102238	

Datasonde Maintenance

Date of Calibration: 10/10/17 mm/dd/yyyy | Technician(s):

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: fDOM 16M100187

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error			Pre-Deployment	
Temp 20.32	22.34			Check Date: 11/13/17			
RP % DO @ 100% sat	%	%		%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	100 %	100.9		102.1 %	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.01
BP @ Cal (Optical)	761.5 mm Hg			772.6 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	761.5 mm Hg	(760.0 for vented sonde)		772.6 mm Hg	101.6 (760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.497
Depth 0.0 offset	0.01 m	0.02		0.166	0.0 offset	pH 7 (0 +/- 50 mV)	-23.11
Station Offset	0.020				0.170	pH 10 (~180 +/- 50 mV)	-196.82
Level 0.0 offset					0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond 50 mS/cm	50.08 mS/cm	50 mS/cm		49.84 mS/cm		Calculated pH slope	0.0
ph 7 7	7.04	7		7.08		(<135 is suspect)	173.71
ph 10 10	9.97	10		10.08		(4/7 will result in negative slope)	
ph 4							
Turb NTU/FNU	0.03 NTU/FNU	0 NTU/FNU		0.05 NTU/FNU		Post-Deployment	
Turb NTU/FNU	125.12 NTU/FNU	124 NTU/FNU		123.40 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	°C			°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	ug/L	ug/L		0.05 ug/L		pH 7 (0 +/- 50 mV)	-27.8
Chl (118) 165.8 ug/L	ug/L	ug/L		ug/L	165.8	pH 10 (~180 +/- 50 mV)	-202.3
						pH 4 (+180 +/- 50 mV)	
Battery voltage	4.8 V	(remove ext. power ~650,6038)		4.4 V	(remove ext. power)	Calculated pH Slope (<135 is suspect)	174.0

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hh mm ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status)	bytes (L) or %
Parameters recorded:					
Temp:		Sp Cond:		Salinity:	
DO % sat		DO Conc:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: CHL/BGA cal'd fDOM not cal'd 9/12/17

Comments-Post: Turb probe died 10/30/17 8'5 → Bc. of used batteries? Temp OK on post

fDOM = 0.11
BGA = 0

Sonde died 10/30/17 1145
Sonde seems to be working ok, including turbidity

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: UPR File Name:

Deployment Information

Date Deployed: 10/10/17 mm dd yyyy Time: 12:48 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 673

Field Data:

Water Temp	16.5	°C	DO Percent	80.5	%
Sp Cond	42.60	mS cm	DO Conc.	6.68	mg/l
Salinity	27.4	ppt	Other		

Comments recover 911, deploy 673, overlap + handheld at 1300
shackle badly rusted on anchor, bring new shackle next visit

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 11/7/17 mm dd yyyy Time: 9:52 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 673

Field Data:

Water Temp	11.1	°C	DO Percent	88.5	%
Sp Cond	36.12	mS cm	DO Conc	8.87	mg/l
Salinity	16.0	ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments recover 673, deploy 177, overlap at 9:45, grab sample
replaced shackle on anchor

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

page log
ph status
d&T S&H

NERRS SWMP Water Quality Calibration Log

Reserve: | Site Name: UPR | File Name: UPR110717

Datasonde Maintenance

Date of Calibration: 11/6/17 mm/dd/yyyy | Technician(s): LM TG

	TURB	ODO		TURB	ODO
Wipers replaced			Wipers park 180° from optics		
Batteries replaced			DO membrane replaced		
Format flash disk			Membrane integrity test		

Datasonde and Probe Identification Numbers

Datasonde	177 EXO 16M102177	DO/ODO	13M102175 (cap 17D)
pH	16T101363	Conductivity	16M102844
Turbidity	13M102200	Wiper	13C101115

Comments: chl 16M101056 fDOM 17F101081

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Standards	Pre-Deployment Before Cal	Pre-Deployment Calibrated	Error	Post-Deployment 12/11/17	
%DO @ 100% sat	1 %	1 %		1 %	1 %
BP @ cal (Rapid Pulse)	1 mm Hg			1 mm Hg	
Optical %DO @ 100% sat	100 %	99.0 %		100.2 %	%
cal (Optical)	757 mm Hg			760.5 mm Hg	
Baro. Pres. (Depth Calib)	757 mm Hg	(760.0 for vented sonde)		760.5 mm Hg	(760.0 for vented)
Depth 0.038 offset	-0.27 m	-0.04		0.008	-10.332 offset
					0.007
SpCond 50 mS/cm	49.9 mS/cm	50 mS/cm		50.05 mS/cm	
pH 7	7	7.01		7.12	
pH 10	10	9.99		10.12	
pH 4					
Turb 0 NTU	0.1 NTU	0 NTU		-0.04	
Turb 124 NTU	122.92	123.97		124.04	
Battery voltage	6.1 V (remove ext. power -650, 6038)			4.8 V (remove ext. power)	

Sensor Diagnostics — Pre-Deployment	
RP DO chrg (range 25-75)	
RP DO gain (0.8-1.7)	
Optical DO gain	0.93
DO warm up test (hi/lo)	
Cell const (4.6-5.45)	0.477
pH 7 (0 +/- 50 mV)	-21.6
pH 10 (-180 +/- 50 mV)	-185.72
pH 4 (+180 +/- 50 mV)	
Calculated pH slope	174.3 174.11

Sensor Diagnostics — Post-Deployment	
DO chrg (range 25-75)	
DO warm up test (hi/lo)	
pH 7 (0 +/- 50 mV)	-28.0
pH 10 (-180 +/- 50 mV)	-202.6
pH 4 (+180 +/- 50 mV)	
Calculated pH slope	174.0

Programming

Interval	min	Start date	mm/dd/yyyy	Start time (old time)	hh:mm:ss
Duration	days	Data file name		Battery life	days
Free memory	days	Set clock (status)	Y or N	Free bytes (status)	K
		End date		End time	

Parameters recorded: Date, Time, Temp°C, SpCon, Sal, DO%, DO mg/L, Depth, pH, Turb, Batt

Comments - Pre: chl/BGA-PC cal'd (fDOM not cal'd 10/2)
T = 21.72
T_S = 21.74

Comments - Post: Sonde very clean
chl = -0.02
BGA = 0.01
fDOM = -0.26

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: UDK File Name:

Deployment Information

Date Deployed: 11/7/17 mm/dd/yyyy Time: 9:52 hh:mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 177

Field Data:

Water Temp	11.1	°C	DO Percent	88.5	%
Sp Cond	26.12	mS/cm	DO Conc.	8.87	mg/l
Salinity	16.0	ppt	Other		

Comments recover 173, deploy 177, overlap at 9:45, grab sample
replaced shackle on anchor

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 12/11/17 mm/dd/yyyy Time: 11:47 hh:mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 177

Field Data:

Water Temp	3.79	°C	DO Percent	95.0	%
Sp Cond	23.86	mS/cm	DO Conc.	11.38	mg/l
Salinity	14.2	ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments recover 177 for season, overlap at 11:45 with 3174
instead of handheld. No sample

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

page log
ph status
J&T S&H
Reserve:

NERRS SWMP Water Quality Calibration Log

CL042617

Site Name: CML File Name:

Datasonde Maintenance

Date of Calibration: 4/25/17 mm/dd/yyyy Technician(s): TG / Lma - post cal

	TURB	ODO		TURB	ODO
Wipers replaced			Wipers park 180° from optics		
Batteries replaced			DO membrane replaced		
Format flash disk			Membrane integrity test		

Datasonde and Probe Identification Numbers

Datasonde	675	DO/ODO	13M 102174
pH	16J 101499	Conductivity	16J 100645
Turbidity	13M 102199		

Comments fDOM 16L103564 Cl 16M 100739

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

	Pre-Deployment Standards	Pre-Deployment Before Cal	Pre-Deployment Calibrated	Pre-Deployment Error	Post-Deployment 6/7/17		Sensor Diagnostics Pre-Deployment
%DO @ 100% sat		1 %	1 %		1 %	1 %	RP DO chrg (range 25-75)
BP @ cal (Rapid Pulse)		1 mm Hg			1 mm Hg		RP DO gain (0.8-1.7)
Optical %DO @ 100% sat		102.8 %	101.4 %		99.7	%	Optical DO gain 1.05
cal (Optical)		771 mm Hg			761 mm Hg		DO warm up test (hi/lo)
Baro. Pres. (Depth Calib)		771 mm Hg	(760 0 for vented sonde)		761.6 mm Hg	(760 0 for vented)	Cell const (4.6-5.45) 0.47
Depth	0.038 offset	0.134 m	0.15 m		0.028 m	-10.332 offset	pH 7 (0 +/- 50 mV) -40
SpCond	50 mS/cm	50.1 mS/cm	50 mS/cm		50.14 mS/cm		pH 10 (-180 +/- 50 mV) -218
pH 7	7	7.15	7				pH 4 (+180 +/- 50 mV)
pH 10	10	10.27	10				Calculated pH slope 174.3
pH 4							
Turb	0 NTU	0.2 NTU	0.0 NTU		0.2 NTU		Post-Deployment
Turb	124 NTU	116.3 NTU	124 NTU		131.6 NTU		DC
Battery voltage		6 V (remove ext. power -650, 6038)			5.1 V (remove ext. power)		DC
							pH
							pH
							pH
							Ca

Did not post-cal pH (no 7)

Programming

Interval	min	Start date	mm/dd/yyyy	Start time (std time)	hh mm ss
Duration	days	Data file name		Battery life	days
Free memory	days	Set clock (status)	Y or N	Free bytes (status)	K
		End date	6/6/17	End time	

Parameters recorded: Date, Time, Temp°C, SpCon, Sal, DO%, DO mg/L, Depth, pH, Turb, Batt

Comments - Pre: offset = 0.15 T = 17.83 Ts = 17.86

Comments - Post: Turb. high on post-cal offset 0.014

NERRS SWMP Water Quality Field Log

Reserve: Great Bay **Station Name:** (illegible) **File Name:**

Deployment Information

Date Deployed: 4/26/17 mm/dd/yyyy **Time:** 1500 est hh:mm (24hr) **White Towel:** yes

Technician(s): (illegible) **Sonde ID #:** 675

Field Data:

Water Temp	8.0	°C	DO Percent	111.0	%
Sp Cond	38.01	mS/cm	DO Conc.	11.25	mg/L
Salinity	25.9	ppt	Other		

Comments Deployed #675 * ebO
Retrieved = SJ1 SI L.I cable

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: **Duration:** **Maintenance:**

Comments

Retrieval Information

Date Retrieved: mm/dd/yyyy **Time:** hh:mm (24hr) **White Towel:** yes

Technician(s): **Sonde ID #:**

Field Data:

Water Temp		°C	DO Percent		%
Sp Cond		mS/cm	DO Conc.		mg/L
Salinity		ppt	Other		

Retrieval on different sheet

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light *(e.g. A.H, B.L)*

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments Light fouling on probes
mussel in bottom of cup. Probe faces clean.
DO paint fairly scratched

File Retrieval

Sonde Filename: **Print Graph:** **Probe Malfunction:**

Comments

page log
ph status
I&T S&H

NERRS SWMP Water Quality Calibration Log

6/6/17

Reserve: | Site Name: | File Name: CML

Datasonde Maintenance

Date of Calibration: 6/1/17 mm/dd/yyyy Technician(s): Lara TG

	TURB	ODO		TURB	ODO
Wipers replaced			Wipers park 180° from optics		
Batteries replaced			DO membrane replaced		
Format flash disk			Membrane integrity test		

Datasonde and Probe Identification Numbers

Datasonde	14A100674 (674)	DO/ODO	13M102172
pH	14A100788	Conductivity	16M102844
Turbidity	13M102200		

Comments: fDOm 16M100181 Chl 16M102054 (PC) pH tip replaced 9/16/16

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

	Pre-Deployment Standards	Before Cal	Calibrated	Error	Post-Deployment 7/5/17		Sensor Diagnostics Pre-Deployment
%DO @ 100% sat		1 %	X %		1 %	X %	RP DO chrg (range 25-75)
BP @ cal (Rapid Pulse)		1 mm Hg			1 mm Hg		RP DO gain (0.8-1.7)
Optical %DO @ 100% sat		101 %	99.7 %		102.0 %	%	Optical DO gain 1.06
cal (Optical)		757 mm Hg			766.7 mm Hg		DO warm up test (hi/lo)
Baro. Pres. (Depth Calib)		75 mm Hg	(760.0 for vented sonde)		766.7 mm Hg	(760.0 for vented)	Cell const (4.6-5.45) 0.47
Depth 0.038 offset		-0.08 m	-0.04 m		0.22 m	-10.332 offset	pH 7 (0 +/- 50 mV) -15.34
SpCond	50 mS/cm	50.3 mS/cm	50 mS/cm		50.0 mS/cm		pH 10 (-180 +/- 50 mV) -195.12
pH 7	7	7.10	7		7.16		pH 4 (+180 +/- 50 mV)
pH 10	10	10.12	10		10.07		Calculated pH slope 174.3
pH 4							**Post-Deployment**
Turb	0 NTU	-0.04 NTU	0.01 NTU		0.11 NTU		DO chrg (range 25-75)
Turb	124 NTU	126.17 NTU	124 NTU		124.56 NTU		DO warm up test (hi/lo)
Battery voltage		5.3 V (remove ext. power ~650, 6038)			V (remove ext. power)		pH 7 (0 +/- 50 mV) -55
							pH 10 (-180 +/- 50 mV) -300.72
							pH 4 (+180 +/- 50 mV)
							Calculated pH slope 0.0

Programming

Interval	mn	Start date	6/6/17 mm/dd/yyyy	Start time (std time)	hh mm ss
Duration	days	Data file name		Battery life	days
Free memory	days	Set clock (status)	Y or N	Free bytes (status)	K
		End date		End time	

Parameters recorded: Date, Time, Temp°C, SpCon, Sal, DO%, DO mg/L, Depth, pH, Turb, Batt

Documents - Pre: Offset = -0.041

T_1 = 19.33

T_2 = 19.42

Comments - Post: fDOm/Chl calibrated in April? Not this month

BGA not calibrated

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: CML File Name:

Deployment Information

Date Deployed: 6/6/17 mm dd yyyy Time: 10:32 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #:

Field Data:

Water Temp	10.5	°C	DO Percent	100.1	%
Sp Cond	38.98	mS cm	DO Conc.	9.49	mg/L
Salinity	24.7	ppt	Other		

Comments retrieve sonde deploy sonde
grab sample may have missed overlap

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: mm dd yyyy Time: hh mm (24hr) White Towel: yes

Technician(s): Sonde ID #:

Field Data:

Water Temp		°C	DO Percent		%
Sp Cond		mS cm	DO Conc.		mg/L
Salinity		ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Field Log

CL0630117

Reserve: Great Bay Station Name: CML File Name:

Deployment Information

Date Deployed: 6/30/17 mm dd yyyy Time: 1342 hh mm (24hr) White Towel: yes

Technician(s): CP Sonde ID #: 3179 – Retrieved

Field Data:

Water Temp	13.2	°C	DO Percent	116	%
Sp Cond	41.14	mS cm	DO Conc.	10.36	mg/L
Salinity	26.3	ppt	Other		

Comments: 1345 overlap, recover 6/74, CMan

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 9/6/17 mm dd yyyy Time: 940 hh mm (24hr) White Towel: yes

Technician(s): CP Sonde ID #: 1774

Field Data: YSI From grab location – floating dock

Water Temp	14.0	°C	DO Percent	122.1	%
Sp Cond		mS cm	DO Conc.	10.76	mg/L
Salinity	27.1	ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard	F/M	External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: 1/8" blue mussel & ~6" ocean pout in guard

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: | CDMO Raw File Name: OWL070617

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	674		pH:	14A10078	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	13M10213	
			Turbidity:	13M10220	
			Conductivity:	16M10584	
			Chlorophyll:	16M10104	
			EXO Wiper:	14A10007	

pc

fDOM 16M100181

Datasonde Maintenance

Date of Calibration: 7/5/17 mm/dd/yyyy | Technician(s): Lara

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: Replaced DO cap | pH tip replaced 9/18/2016

Pre/Post Deployment Calibration

Pre-Deployment

	Standards	Before Cal	Calibrated	Error
Temp	22.06	22.03		
RP % DO @ 100% sat		%	%	
BP @ cal (Rapid Pulse)		mm Hg		
Optical %DO @ 100% sat	106.8 %	100.9 %		
BP @ Cal (Optical)	766.6 mm Hg			
Baro. Pres. (Depth Calib)	766.6 mm Hg	(760.0 for vented sonde)		
Depth 0.0 offset	0.23 m	0.10 m		
Station Offset				
Level 0.0 offset				
SpCond	50 mS/cm	50.07 mS/cm	50 mS/cm	
ph 7	7	7.14	7	
ph 10	10	10.07	10	
ph 4				
Turb	0 NTU/FNU	0.11 NTU/FNU	0 NTU/FNU	
Turb	124 NTU/FNU	124.56 NTU/FNU	124 NTU/FNU	
Rhodamine WT Temp		°C		
Chl (0) 0.0 ug/L		ug/L	ug/L	
Chl (118) 165.8 ug/L		ug/L	ug/L	
Battery voltage	6.3 V	(remove ext. power ~6.50,6.63?)		

Post-Deployment

Check Date		
%	%	
%	%	
mm Hg		
mm Hg	(760.0 for vented)	
m	0.0 offset	
	0.0 offset	
mS/cm		
NTU/FNU		
NTU/FNU		
°C		
ug/L		
ug/L	165.8	
V	(remove ext. power)	

Sensor Diagnostics

Pre-Deployment

RP DO chrg (range 25-75)	
RP DO gain (0.7-1.4)	
Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.00
RP DO warm up test (hi/lo)	
Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.477
pH 7 (0 +/- 50 mV)	-25
pH 10 (-180 +/- 50 mV)	-200.72
pH 4 (+180 +/- 50 mV)	
Calculated pH slope (<155 is suspect) (4/7 will result in negative slope)	175.72

Post-Deployment

RP DO chrg (range 25-75)	
RP DO warm up test (hi/lo)	
pH 7 (0 +/- 50 mV)	
pH 10 (-180 +/- 50 mV)	
pH 4 (+180 +/- 50 mV)	
Calculated pH Slope (<155 is suspect)	0.0

Not post cal'd

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hr mm ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %

Parameters recorded

Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc.:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: Off set = 0.095 | cl / BGA / fDOM cal'd →

Comments-Post: Sonde died 7/18, 19:45 (Wiper died 7/16 23:30)

Had to bonde in for servicing - couldn't

NERRS SWMP Water Quality Field Log

Reserve: Great Bay **Station Name:** CML **File Name:**

Deployment Information

Date Deployed: 7/6/17 mm/dd/yyyy **Time:** 0948 hh mm (24hr) **White Towel:** yes

Technician(s): CP **Sonde ID #:** 674

Field Data:

Water Temp	14.0	°C	DO Percent	122.1	%
Sp Cond		mS/cm	DO Conc.	10.76	mg/L
Salinity	27.1	ppt	Other		

Comments YSI from grab location - floating dock. Took validation sample w/ grab low tide at 1300est.

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: **Duration:** **Maintenance:**

Comments

Retrieval Information

Date Retrieved: 7/24/17 mm/dd/yyyy **Time:** 9:38 hh mm (24hr) **White Towel:** yes

Technician(s): ZK **Sonde ID #:** 674

Field Data:

Water Temp	17.5	°C	DO Percent	108.7	%
Sp Cond	42.21	mS/cm	DO Conc.	8.76	mg/L
Salinity	27.2	ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light *(e.g. A H, B L)*

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments very little biofouling. Recover 674, deploy 176. overlap at 9:45

File Retrieval

Sonde Filename: **Print Graph:** **Probe Malfunction:**

Comments

NERRS SWMP Water Quality Calibration Log

(CL)

Reserve: | Station Name: | CDMO Raw File Name: CML072417

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	176		pH:	16M103216	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	16M101436	
			Turbidity:	16M101478	
			Conductivity:	16M100099	
			Chlorophyll:	16M100743	
			EXO Wiper:	16M101307	

Datasonde Maintenance

Date of Calibration: 7/20/17 mm/dd/yyyy | Technician(s):

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: fDOM 16M101490

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error			Pre-Deployment	
Temp 22.35	22.37			Check Date			
RP % DO @ 100% sat	%	%		%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	100.10	99.8 %		99.7 %	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.05
BP @ Cal (Optical)	758.3 mm Hg			758.6 mm Hg		RP DO warm up test (hi/lo)	
Baro Pres. (Depth Calib)	758.0 mm Hg	(760.0 for vented sonde)		758.6 mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.47
Depth 0.0 offset	-0.06 m	-10.03 m		-0.02	0.925 m offset	pH 7 (0 +/- 50 mV)	-22.49
Station Offset						pH 10 (+180 +/- 50 mV)	-198.64
Level 0.0 offset					0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond mS/cm	49.8 mS/cm	50 mS/cm		49.88 mS/cm		Calculated pH slope (<155 is suspect) (4/7 will result in negative slope)	0.0
ph 7	7.11	7		6.96			
ph 10	10.14	10		9.96			
ph 4							
Turb NTU/FNU	+0.28 NTU/FNU	0 NTU/FNU		0.33 NTU/FNU			
Turb NTU/FNU	119 NTU/FNU	124.01 NTU/FNU		123.89 NTU/FNU		Post-Deployment	
Rhodamine WT Temp	°C			23.22		RP DO chrg (range 25-75)	
Chl (0) 0.0 ug/L	ug/L	ug/L		0.11 ug/L		RP DO warm up test (hi/lo)	
Chl (118) 165.8 ug/L	ug/L	ug/L		61.12 ug/L	165.8	pH 7 (0 +/- 50 mV)	-20.2
						pH 10 (+180 +/- 50 mV)	-196.40
						pH 4 (+180 +/- 50 mV)	
Battery voltage	5.0	(remove ext. power ~650,603k)		4.7 V	(remove ext. power)	Calculated pH Slope (<155 is suspect)	176.11

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hh mm ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %

Parameters recorded

Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc.:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: off = -0.027 chl/fdom/bga cal'd

Comments-Post: very lt. fouling, faces clean

BGA - 0.14

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: CML File Name:

Deployment Information

Date Deployed: 7/24/17 mm dd yyyy Time: 9:38 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 176

Field Data:

Water Temp	17.5	°C	DO Percent	102.7	%
Sp Cond	42.21	mS cm	DO Conc.	8.76	mg/L
Salinity	27.2	ppt	Other		

Comments recover 174, deploy 176, took triplicate val sample overlap at 9:45

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 8/22/17 mm dd yyyy Time: 10:35 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 2174

Field Data:

Water Temp	11.0.0	°C	DO Percent	117.3	%
Sp Cond	43.57	mS cm	DO Conc.	9.84	mg/L
Salinity	28.1	ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments recover 176, deploy 174, overlap at 10:45, grab sample

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: | CDMO Raw File Name: CML082217

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	21 74		pH:	16M103217	
Vented:		Model Number	RP DO:		
Nickname:			ODO:	16M101433	
			Turbidity:	16M101857	
			Conductivity:	16M100160	
			Chlorophyll:	16M101053	
			EXO Wiper:	16M101302	

Datasonde Maintenance

Date of Calibration: 8/21/17 mm/dd/yyyy | Technician(s):

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced:				Wiper parks 180° from optics:			
Batteries Replaced:				DO/ODO membrane replaced:			
Format Flash Disk:				Membrane integrity test:			

Comments: fDOM 16M101082

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error	9/18		Pre-Deployment	
Temp 22.68	22.7 °C			Check Date			
RP % DO @ 100% sat	%	%		%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	101.20	100.4 %		%	%	Optical DO gain (660n: 0.7-1.4, EXO: 0.87-1.25)	1.08
BP @ Cal (Optical)	763.3 mm Hg			766 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	763.3 mm Hg	(760.0 for vented sonde)		100.9 mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.477
Depth 0.0 offset	0.01 m	0.05 m		766.3 m	0.0 offset	pH 7 (0 +/- 50 mV)	-21.87
Station Offset	0.0427			0.102	0.09 0.0 offset	pH 10 (+180 +/- 50 mV)	-209.23
Level 0.0 offset						pH 4 (+180 +/- 50 mV)	
SpCond mS/cm	50.1 mS/cm	50 mS/cm		49.7 mS/cm		Calculated pH slope (<155 is suspect)	178.36
ph 7	7.02	7		6.68		(-4/7 will result in negative slope)	
ph 10	10.06	10.01		6.63			
ph 4							
Turb NTU/FNU	0.1 NTU/FNU	0 NTU/FNU		0.3 NTU/FNU		Post-Deployment	
Turb NTU/FNU	126.1 NTU/FNU	124.0 NTU/FNU		1.2 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	°C			°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	ug/L	ug/L		ug/L		pH 7 (0 +/- 50 mV)	-2.4
Chl (118) 165.8 ug/L	ug/L	ug/L		ug/L	165.8	pH 10 (+180 +/- 50 mV)	-1.3
						pH 4 (+180 +/- 50 mV)	
Battery voltage	4.8 V	(remove ext. power ~650,6038)		4.6 V	(remove ext. power)	Calculated pH Slope (<155 is suspect)	X

Programming

Interval	min	Start date	mm/dd/yyyy	Start time (STD)	24 hh mm ss
Duration	days	sonde file name		Battery life	days
Free memory	days	Set clock (status)	Y or N	Free memory (status)	bytes (k) or %

Parameters recorded:

Temp		Sp Cond		Salinity	
DO % sat		DO Conc		Depth/Level	
pH		Turbidity		Chlorophyll	
		pH mV		Battery Voltage	

Comments-Pre: Chl/BGA-PC/fDOM cal'd

Comments-Post: fDOM #s all over Wiper fell off during deployment

Chl @ 0 0.08

fDOM @ 0 0.57 (pH died @

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: CML File Name:

Deployment Information

Date Deployed: 8/22/17 mm dd yyyy Time: 10:35 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 174

Field Data:

Water Temp	16.0	°C	DO Percent	117.3	%
Sp Cond	43.57	mS cm	DO Conc.	9.84	mg/l
Salinity	28.1	ppt	Other		

Comments: recover 176, deploy 174, overlap at 10:45, grab sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 9/18/17 mm dd yyyy Time: 11:32 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 2174

Field Data:

Water Temp	14.2	°C	DO Percent	130.1	%
Sp Cond	44.20	mS cm	DO Conc.	11.31	mg/l
Salinity	28.5	ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: recover 2174, deploy 178, overlap at 11:45
missing wiper sensors

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: CML File Name:

Deployment Information

Date Deployed: 8/28/17 mm dd yyyy Time: 12:15 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 2174

Field Data:

Water Temp	16.2	°C	DO Percent	109.2	%
Sp Cond	43.14	mS cm	DO Conc.	9.19	mg/L
Salinity	27.9	ppt	Other		

Comments no deploy/recover. grab sample
checked sonde, wiper/sensors clean

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: mm dd yyyy Time: hh mm (24hr) White Towel: yes

Technician(s): Sonde ID #:

Field Data:

Water Temp		°C	DO Percent		%
Sp Cond		mS cm	DO Conc.		mg/L
Salinity		ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: | CDMO Raw File Name: OM109817

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number
Datasonde:	178	16M
Vented:		Model Number
Nickname:		

	Serial Number	Model Number
pH:	16M102423	
RP DO:		
ODO:	16M101435	
Turbidity:	16M101479	
Conductivity:	16M100101	
Chlorophyll:	16M100741	
EXO Wiper:	16M101302	

Datasonde Maintenance

Date of Calibration: 9/13/17 (mm/dd/yyyy) | Technician(s):

	TURB	ODO	CHL
Wipers Replaced:			
Batteries Replaced:			
Format Flash Disk:			

	TURB	ODO	CHL
Wiper parks 180° from optics:			
DO/ODO membrane replaced:			
Membrane integrity test:			

Comments: fDOm 16M100183

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error			**Pre-Deployment**	
Temp °C	°C			10/23 Check Date			
RP % DO @ 100% sat	%	%		%	%	RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)	mm Hg					RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	101.3	101 %		101.4	%	Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.08
BP @ Cal (Optical)	762.1 mm Hg			771.8 mm Hg		RP DO warm up test (hi/lo)	
Baro. Pres. (Depth Calib)	762.1 mm Hg	(760.0 for vented sonde)		11 mm Hg	(760.0 for vented)	Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.419-0.519)	0.547
Depth 0.0 offset	0.19 m	0.10 m		0.154	0.0 offset	pH 7 (0 +/- 50 mV)	-27.16
Station Offset	0.095			0.161		pH 10 (-180 +/- 50 mV)	-204.17
Level 0.0 offset					0.0 offset	pH 4 (+180 +/- 50 mV)	
SpCond mS/cm	49.76 mS/cm	50 mS/cm		50.44 mS/cm		Calculated pH slope (>155 is suspect) (<47 will result in negative slope)	177.03
ph 7	7.10	7		7.01			
ph 10	10.08	10		9.94			
ph 4							
Turb NTU/FNU	0.69 NTU/FNU	0.0 NTU/FNU		0.16 NTU/FNU		**Post-Deployment**	
Turb NTU/FNU	124.21 NTU/FNU	124 NTU/FNU		1.24 NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp	°C			°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L	ug/L	ug/L		ug/L		pH 7 (0 +/- 50 mV)	-27.5
Chl (118) 165.8 ug/L	ug/L	ug/L		ug/L	165.8	pH 10 (-180 +/- 50 mV)	-202.5
						pH 4 (+180 +/- 50 mV)	
Battery voltage	11.5 V	(remove ext. power ~650,6038)		Dead	(remove ext. power)	Calculated pH Slope (<155 is suspect)	173.0

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hh mm ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %

Parameters recorded:

Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: DO/BGA - pt cal'd fDOm not cal'd 9/15

Comments-Post: Battery dead - last reading 10/11 3:00

Very H. fouling T = 20.45 T_s = 20.4 DO 0.0 BGA 0.1

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: CML File Name:

Deployment Information

Date Deployed: 9/18/17 mm dd yyyy Time: 11:32 hh mm (24hr) White Towel: yes

Technician(s): TR Sonde ID #: 178

Field Data:

Water Temp	14.2	°C	DO Percent	130.1	%
Sp Cond	44.20	mS cm	DO Conc.	11.31	mg/L
Salinity	28.5	ppt	Other		

Comments recover 2174, deploy 178 - overlap at 11:45
↳ missing wiper, sensors clean

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 10/17/17 mm dd yyyy Time: 14:20 hh mm (24hr) White Towel: yes

Technician(s): CP Sonde ID #: 178

Field Data:

Water Temp	12.8	°C	DO Percent	86.4	%
Sp Cond	44.76	mS cm	DO Conc.	7.69	mg/L
Salinity	28.9	ppt	Other		

*copy Christ

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments 3 sand lancets + 1 crab in sonde tube. Recover 178, deploy 179 - overlap at 1430, grab sample

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: CML File Name:

Deployment Information

Date Deployed: 10/3/17 mm dd yyyy Time: 9:15 hh mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 178

Field Data:

Water Temp	15.3	°C	DO Percent	88.2	%
Sp Cond	44.13	mS cm	DO Conc.	7.60	mg/L
Salinity	28.5	ppt	Other		

Comments midway sample, handheld at 9:15
sensors clean, fish in sonde tube

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 10/ mm dd yyyy Time: hh mm (24hr) White Towel: yes

Technician(s): Sonde ID #:

Field Data:

Water Temp		°C	DO Percent		%
Sp Cond		mS cm	DO Conc.		mg/L
Salinity		ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: | Station Name: | CDMO Raw File Name: CRL101717

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde:	179		pH:	16M102484	NEW HP 17E
Vented:		Model Number	RP DO:		
Nickname:			ODO:	16M101431	
			Turbidity:	14H102919	
			Conductivity:	16M100642	
			Chlorophyll:	16M101055	
			EXO Wiper:	16M101299	

Datasonde Maintenance

Date of Calibration: 10/16/17 mm/dd/yyyy | Technician(s): LM

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced				Wiper parks 180° from optics			
Batteries Replaced				DO/ODO membrane replaced			
Format Flash Disk				Membrane integrity test			

Comments: New pH HP fDOM 16M101489

Pre/Post Deployment Calibration

Pre-Deployment					Post-Deployment			Sensor Diagnostics	
	Standards	Before Cal	Calibrated	Error				Pre-Deployment	
Temp	22.20	22.22			Check Date	11/13			
RP % DO @ 100% sat		%	%		%	%		RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)		mm Hg						RP DO gain (0.7-1.4)	
Optical %DO @ 100% sat	99.5	100.2			101.9	%		Optical DO gain (6600: 0.7-1.4, EXO: 0.87-1.25)	1.08
BP @ Cal (Optical)	761.4				770.9			RP DO warm up test (hi/lo)	
Baro Pres. (Depth Calib)	761.4	(760.0 for vented sonde)			770.9	(760.0 for vented)		Cell const (6600: 4.6-5.45, EXO: 5.05-5.95, WPD EXO: 0.41-0.519)	0.47
Depth 0.0 offset	-0.02	0.20			0.143	0.0 offset		pH 7 (0 +/- 50 mV)	-6.45
Station Offset		0.220				0.150		pH 10 (+180 +/- 50 mV)	-180.29
Level 0.0 offset						0.0 offset		pH 4 (+180 +/- 50 mV)	
SpCond mS/cm	50.0	mS/cm	50 mS/cm		49.99	mS/cm		Calculated pH slope (<155 is suspect) (4/7 will result in negative slope)	173.84
ph 7	6.7		7		7.03				
ph 10	9.69		10		10.12				
ph 4									
Turb NTU/FNU	0.0	NTU/FNU	0 NTU/FNU		0.1	NTU/FNU		Post-Deployment	
Turb NTU/FNU	124.53	NTU/FNU	124 NTU/FNU		123.15	NTU/FNU		RP DO chrg (range 25-75)	
Rhodamine WT Temp		°C				°C		RP DO warm up test (hi/lo)	
Chl (0) 0.0 ug/L		ug/L	ug/L		-0.03			pH 7 (0 +/- 50 mV)	-14.0
Chl (118) 165.8 ug/L		ug/L	ug/L			ug/L	165.8	pH 10 (+180 +/- 50 mV)	-180.3
								pH 4 (+180 +/- 50 mV)	
Battery voltage	4.7	V	(remove ext. power ~650,6138)		4.3	V	(remove ext. power)	Calculated pH Slope (<155 is suspect)	172.83

Programming

Interval:	min	Start date:	mm/dd/yyyy	Start time (STD):	24 hr mm ss
Duration:	days	sonde file name:		Battery life:	days
Free memory:	days	Set clock (status):	Y or N	Free memory (status):	bytes (k) or %

Parameters recorded:

Temp:		Sp Cond:		Salinity:	
DO % sat:		DO Conc:		Depth/Level:	
pH:		Turbidity:		Chlorophyll:	
		pH mV:		Battery Voltage:	

Comments-Pre: Chl/BGA-PC cal'd fDOM not (cal'd 9/13)

Comments-Post: Sonde very clean BGA = -0.01 fDOM = -0.67

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: TML File Name:

Deployment Information

Date Deployed: 10/19/17 mm/dd/yyyy Time: 14:20 hh:mm (24hr) White Towel: yes

Technician(s): CP Sonde ID #: 179

Field Data:

Water Temp	12.8	°C	DO Percent	86.4	%
Sp Cond	44.76	mS/cm	DO Conc.	7.69	mg/L
Salinity	28.9	ppt	Other		

Comments: recover 178, deploy 179, overlap at 14:30

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: 11/7/17 Duration: 0:10 Maintenance: biofouling removal

Comments: dove to clean tube opening + replace bolt

Retrieval Information

Date Retrieved: 11/13/17 mm/dd/yyyy Time: 16:20 hh:mm (24hr) White Towel: yes

Technician(s): ZK Sonde ID #: 179

Field Data:

Water Temp	8.2	°C	DO Percent	90.6	%
Sp Cond	41.01	mS/cm	DO Conc.	9.10	mg/L
Salinity	26.0	ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: recover 179, deploy 674, overlap at 16:15, grab sample

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments:

* copy ch... the...

* copied onto field log

UNH Jackson Estuarine Lab Water Quality Monitoring

Station: CML

Technicians: CP

Date: 10/17/17

Serial #:

Time: 1420

Tide: L

44.76 spc - for sonde swap

Water Quality Parameters

Depth (m)	DO (mg/L)	DO (% Sat)	Salinity (ppt)	Temp (°C)
0.5	7.69	86.4	28.9	12.8

Environmental Conditions

Cloud Cover (%)	Precipitation	Ebb/Flood	Wave Height (m)	Wind Direction	Wind Speed (mph)
10	—	E	—	W	8

Light Cast/PAR Measurements

Bottom Depth: 2.0 (m)

Check if applicable

If missing 1 light reading, it was 1.50m

- ☐ 3X Light
- ☐ 3X Grab
- ☐ No Light Cast Measured

→ off floating dock ~ 6ft 1.5hr before LT

Notes: Overlap sonde 1426-1434. Deployed ~~#~~ 16M102179 9217?3

Retrieved # 16M102178/9217?9

Swapped sonde at ~ 1440est. found 2 sand lances (2-5" long) and 2" crab in sonde guard

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: CML File Name:

Deployment Information

Date Deployed: 11/7/17 mm/dd/yyyy Time: 2:25 hh:mm (24hr) White Towel: yes

Technician(s): ZR Sonde ID #: 179

Field Data:

Water Temp	9.8	°C	DO Percent	90.8	%
Sp Cond	44.71	mS/cm	DO Conc.	8.60	mg/l
Salinity	28.7	ppt	Other		

Comments: midway sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: 11/7/17 Duration: 0:10 Maintenance: biofouling removal

Comments: done to clean tube opening + replace bolt

Retrieval Information

Date Retrieved: mm/dd/yyyy Time: hh:mm (24hr) White Towel: yes

Technician(s): Sonde ID #:

Field Data:

Water Temp		°C	DO Percent		%
Sp Cond		mS/cm	DO Conc.		mg/l
Salinity		ppt	Other		

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments:

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments:

page log
ph status
d&T S&H

NERRS SWMP Water Quality Calibration Log

Reserve: | Site Name: | File Name: CML1113T

Datasonde Maintenance

Date of Calibration: 11/13/17 mm/dd/yyyy | Technician(s): CM FG

	TURB	ODO		TURB	ODO
Wipers replaced			Wipers park 180° from optics		
Batteries replaced			DO membrane replaced		
Format flash disk			Membrane integrity test		

Datasonde and Probe Identification Numbers

Datasonde	674 14AEXO	DO/ODO	16M101434
pH	16M103220	Conductivity	16J100644
Turbidity	16M101482	Wiper	16M101305

Comments: fDOM 16M100185 Chl 16M100740

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

	Pre-Deployment Standards	Before Cal	Calibrated	Error	Post-Deployment		Sensor Diagnostics Pre-Deployment
%DO @ 100% sat	/ %	/ %	/ %		/ %	/ %	RP DO chrg (range 25-75)
BP @ cal (Rapid Pulse)	/ mm Hg	/			/ mm Hg		RP DO gain (0.8-1.7)
Optical %DO @ 100% sat	101.6 %	101.4			101.6	%	Optical DO gain 1.05
BP @ cal (Optical)	771.4 mm Hg				766.5 mm Hg		DO warm up test (hi/lo)
Baro. Pres. (Depth Calib)	771.4 mm Hg	(760.0 for vented sonde)			766.5 mm Hg	(760.0 for vented)	Cell const (4.6-5.45) 0.47
Depth 0.038 offset	0.238	0.151 m			0.038	-10.332 offset	pH 7 (0 +/- 50 mV) -34.3
		0.15				0.088	pH 10 (-180 +/- 50 mV) -209.40
SpCond 50 mS/cm	49.96 mS/cm	50 mS/cm			50.25		pH 4 (+180 +/- 50 mV)
pH 7	7	7.04	7		6.98		Calculated pH slope 174.3
pH 10	10	10.03	10		10.25		175.05
pH 4							**Post-Deployment**
Turb 0 NTU	0.21 NTU	0 NTU			0.06		DO chrg (range 25-75)
Turb 124 NTU	122.07 NTU	124 NTU			123.8 NTU		DO warm up test (hi/lo)
							pH 7 (0 +/- 50 mV) -33.1
							pH 10 (-180 +/- 50 mV) -213.4
							pH 4 (+180 +/- 50 mV)
Battery voltage	6.0 V (remove ext. power -650, 6038)				7.5 V (remove ext. power)		Calculated pH slope 180.3

Programming

Interval	min	Start date	mm/dd/yyyy	Start time (std time)		hh mm ss	
Duration	days	Data file name		Battery life		days	
Free memory	days	Set clock (status)	Y or N	Free bytes (status)		K	
		End date		End time			

Parameters recorded: Date, Time, Temp°C, SpCon, Sal, DO%, DO mg/L, Depth, pH, Turb, Batt

ents - Pre: fDOM, Chl, BGA-PC cal'd
T = 21.21
Ts = 21.18

Comments - Post:

NERRS SWMP Water Quality Field Log

Reserve: Great Bay **Station Name:** CML **File Name:**

Deployment Information

Date Deployed: 11/3/17 mm/dd/yyyy **Time:** 1620 hh:mm (24hr) **White Towel:** yes

Technician(s): ZK **Sonde ID #:** 674

Field Data:

Water Temp	8.2	°C	DO Percent	90.6 %
Sp Cond	41.01	mS/cm	DO Conc.	9.10 mg/l
Salinity	26.0	ppt	Other	

Comments recover 179, deploy 674, overlap at 1615, grab sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: **Duration:** **Maintenance:**

Comments

Retrieval Information

Date Retrieved: mm/dd/yyyy **Time:** hh:mm (24hr) **White Towel:** yes

Technician(s): **Sonde ID #:**

Field Data:

Water Temp		°C	DO Percent	%
Sp Cond		mS/cm	DO Conc.	mg/l
Salinity		ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light *(e.g. A H, B L)*

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments

File Retrieval

Sonde Filename: **Print Graph:** **Probe Malfunction:**

Comments

age log
h status
I&T S&H
Reserve:

NERRS SWMP W[redacted] Calibration Log

Site Name: [redacted]

File Name: SF082317

Datasonde Maintenance

Date of Calibration: 8/22/17 mm/dd/yyyy

Technician(s): TG

	TURB	ODO
Wipers replaced	Y	Y
Batteries replaced	Y	
Format flash disk		

	TURB	ODO
Wipers park 180° from optics	Y	Y
DO membrane replaced	—	
Membrane integrity test	—	

Datasonde and Probe Identification Numbers

Datasonde	A (V2-4 sonde 6600)	DO/ODO	
pH		Conductivity	
Turbidity			

Comments

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Standards	Pre-Deployment Before Cal	Pre-Deployment Calibrated	Pre-Deployment Error	Post-Deployment	Post-Deployment
%DO @ 100% sat	/ %	/ %		/ %	/ %
BP @ cal (Rapid Pulse)	/ mm Hg	/ mm Hg			
Optical %DO @ 100% sat	97.5 %	100.1 %			%
cal (Optical)	760.4 mm Hg			mm Hg	
Baro. Pres. (Depth Calib)	760.4 mm Hg	(760.0 for vented sonde)		mm Hg	(760.0 for vented)
Depth 0.038 offset 0.007	10.3 m	0.00 m		m	-10.332 offset
SpCond mS/cm	50.4 mS/cm	50.0 mS/cm		38.3 mS/cm	
pH 7	7.14	7			
pH 10	9.97	10			
pH 4					
Turb NTU	3.0 NTU	0 NTU		NTU	
Turb NTU	130.1 NTU	126 NTU		NTU	
Battery voltage	13.0 V (remove ext. power -650, 6038)			V (remove ext. power)	

Sensor Diagnostics — Pre-Deployment	
RP DO chrg (range 25-75)	
RP DO gain (0.8-1.7)	
Optical DO gain	
DO warm up test (hi/lo)	
Cell const (4.6-5.45)	4.97
pH 7 (0 +/- 50 mV)	-8.2
pH 10 (-180 +/- 50 mV)	-183.0
pH 4 (+180 +/- 50 mV)	174.8
Calculated pH slope	174.3

Sensor Diagnostics — Post-Deployment	
DO chrg (range 25-75)	
DO warm up test (hi/lo)	
pH 7 (0 +/- 50 mV)	
pH 10 (-180 +/- 50 mV)	
pH 4 (+180 +/- 50 mV)	
Calculated pH slope	0.0

Programming

Interval	min	Start date	mm dd yyyy	Start time (std time)	hh mm ss
Duration	days	Data file name		Battery life	days
Free memory	days	Set clock (status)	Y or N	Free bytes (status)	K
		End date		End time	

Parameters recorded: Date, Time, Temp°C, SpCon, Sal, DO%, DO mg/L, Depth, pH, Turb, Batt

Comments - Pre: T=23.13 T_S = 23.10

Comments - Post: SpC out of range > 38 mS Temp ~ 43°

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: SF File Name:

Deployment Information

Date Deployed: 8/23/17 mm dd yyyy Time: 1220 hh mm (24hr) White Towel: yes

Technician(s): TB Sonde ID #: 6600

Field Data:

Water Temp	°C		DO Percent	%
Sp Cond	mS cm		DO Conc.	mg/l
Salinity	ppt		Other	

Comments

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: mm dd yyyy Time: hh mm (24hr) White Towel: yes

Technician(s): Sonde ID #:

Field Data:

Water Temp	°C		DO Percent	%
Sp Cond	mS cm		DO Conc.	mg/l
Salinity	ppt		Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

age log
h status
&T S&H
Reserve:

NERRS SWMP Water Quality Calibration Log

Site Name:

File Name: SF092117

Datasonde Maintenance

Date of Calibration: 9/19/17 mm/dd/yyyy

Technician(s): TG

	TURB	ODO
Wipers replaced		
Batteries replaced		
Format flash disk		

	TURB	ODO
Wipers park 180° from optics		
DO membrane replaced		
Membrane integrity test		

Datasonde and Probe Identification Numbers

Datasonde	382	DO/ODO	
pH		Conductivity	
Turbidity			

66600

Comments

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Standards	Pre-Deployment Before Cal	Pre-Deployment Calibrated	Pre-Deployment Error	Post-Deployment	
%DO @ 100% sat	/ %	/ %		/ %	/ %
BP @ cal (Rapid Pulse)	/ mm Hg			/ mm Hg	
Optical %DO @ 100% sat	101.8 %	100.7 %		101.4 %	%
cal (Optical)	765.4 mm Hg			771.5 mm Hg	
Baro. Pres. (Depth Calib)	765.3 mm Hg	(760.0 for vented sonde)		mm Hg	(760.0 for vented)
Depth 0.038 offset	0.067 m	0.073 m		0.160	-10.332 offset
SpCond 50 mS/cm	45.06 mS/cm	50 mS/cm		49.79 mS/cm	
pH 7	7	7			
pH 10	10	10.0			
pH 4					
	Not good 7.48 9.74				
Turb 0 NTU	0.4 NTU	0 NTU		1.2 NTU	
Turb 126 NTU	176 NTU	126 NTU		NTU	
Battery voltage	13.0 V (remove ext. power 650, 6038)			11.5 (remove ext power)	

Sensor Diagnostics Pre-Deployment	
RP DO chrg (range 25-75)	
RP DO gain (0.8-1.7)	
Optical DO gain	
DO warm up test (hi/lo)	
Cell const (4.6-5.45)	
pH 7 (0 +/- 50 mV)	-38.0
pH 10 (-180 +/- 50 mV)	-189.5
pH 4 (+180 +/- 50 mV)	
Calculated pH slope	174.3 151.5 ba

Sensor Diagnostics Post-Deployment	
DO chrg (range 25-75)	
DO warm up test (hi/lo)	
pH 7 (0 +/- 50 mV)	
pH 10 (-180 +/- 50 mV)	
pH 4 (+180 +/- 50 mV)	
Calculated pH slope	0.0

Programming

Interval	min	Start date	mm/dd/yyyy	Start time (std time)	hh:mm:ss
Duration	days	Data file name		Battery life	117 days
Free memory	days	Set clock (status)	Y or N	Free bytes (status)	135424 k
		End date		End time	

Parameters recorded: Date, Time, Temp°C, SpCon, Sal, DO%, DO mg/L, Depth, pH, Turb, Batt

184.7

nents - Pre: T=22.10 T5 = 21.94 - Temp is off /
Redid pH cal as I accidentally hit enter too quickly
#2 7.03 @ 7 -39.4 9.89 @ 10 -184.0

Comments - Post: (2nd pre pH out of sang - did not accept pH values BAB)
Sonde / Mobes were installed and measured pH bulb covered

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: SE File Name:

Deployment Information

Date Deployed: 9/21/17 mm/dd/yyyy Time: 1100 hh:mm (24hr) White Towel: yes

Technician(s): TK Sonde ID #: 522

Field Data:

Water Temp	19.2 °C	19.7	DO Percent	110 %	recal 121.6
Sp Cond	37.7 mS/cm	38.2	DO Conc.	9.14 mg/l	10.1
Salinity	27.4 ppt	17.4	Other		

Comments: 1100 overlap, recover

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: mm/dd/yyyy Time: hh:mm (24hr) White Towel: yes

Technician(s): Sonde ID #:

Field Data:

Water Temp	°C		DO Percent	%
Sp Cond	mS/cm		DO Conc.	mg/l
Salinity	ppt		Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments